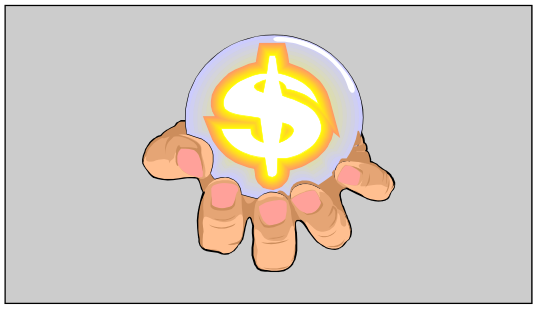
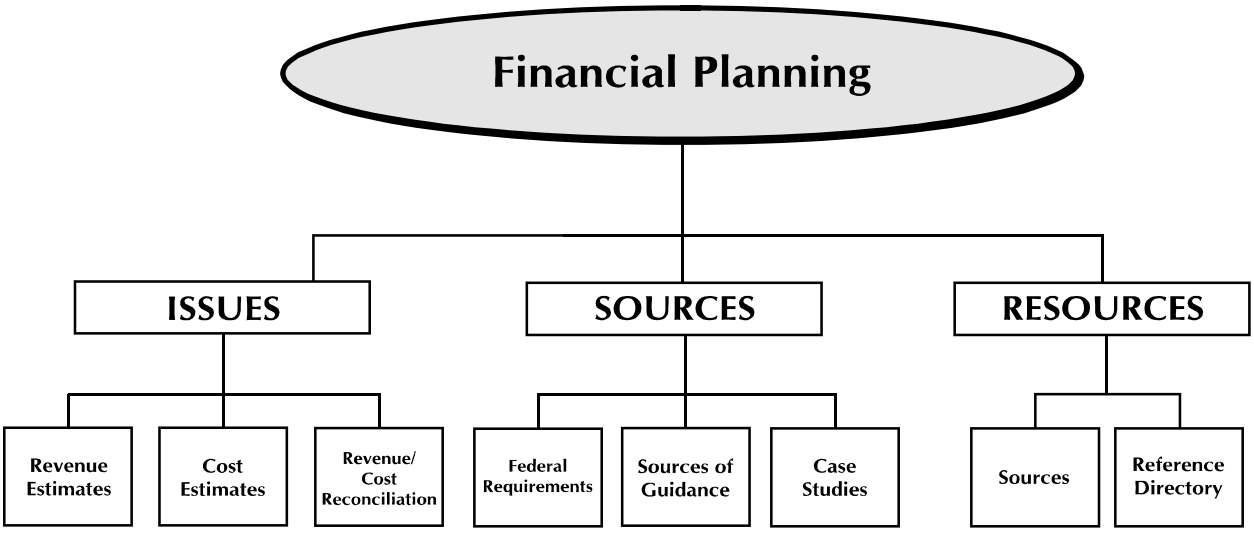
Financial Planning

For Small and Medium MPOs





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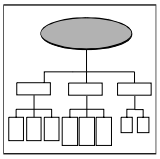


INTRODUCTION

A. FISCAL CONSTRAINT

(U.S. Department of Transportation, 1998a: 25 - 26)

Total estimated costs of projects included in a plan cannot exceed estimated revenues and the estimated cost of constructing, operating, and maintaining the total (existing plus planned) transportation system over the period of the plan. . . . For TIP's, financial constraint means funds must be identified for the period of the TIP and associated with specific projects. . . . The purpose of this requirement is to encourage good financial planning and to prevent plans and TIP's from becoming 'wish lists' of projects with no realistic chance of implementation. Without constraints, the need to make choices and set priorities is often ignored.

B. FEDERAL MPO FINANCIAL PLANNING REQUIREMENTS

ISTEA and TEA-21 require MPOs to develop constrained financial plans for long-range transportation plans (LRTPs) and transportation improvement programs (TIPs).

1. Long-Range Transportation Plans (LRTP)

The LRTP is required to include a financial plan that:

- Demonstrates how the adopted LRTP can be implemented (e.g., it compares estimated revenues from existing and proposed funding sources that can be reasonably expected to be available for transportation uses with the costs of constructing, maintaining, and operating the existing and proposed transportation system over the period of the plan);
- Indicates resources from public and private sources that are reasonably expected to be made available to carry out the plan;
- Recommends any additional financing strategies for needed projects and programs; and
- Includes funding estimates developed cooperatively by the State and the MPO.

2. Transportation Improvement Programs (TIP)

The metropolitan TIP is required to include a financial plan that:

- Demonstrates how the adopted TIP can be implemented (e.g., it compares estimated revenues from existing and proposed funding sources that can be reasonably expected to be available for transportation uses with the costs of constructing, maintaining, and operating the existing and proposed transportation system over the period of the plan);

- Indicates resources from public and private sources that are reasonably expected to be available to carry out the program; and

- Identifies innovative techniques to finance projects, programs, and strategies.

The TIP and the LRTP may include, for illustrative purposes, additional projects that would be included in the plan or program if reasonable additional resources beyond those identified in the financial plan were available. **For the text of laws and regulation applicable to financial planning for MPOs, see Sources Outline: Section "A"** (U.S. Department of Transportation, 1998b and 1998e).

C. APPROACH AND ORGANIZATION OF FINANCIAL PLANNING GUIDE

Developing financial plans for TIPs and LRTPs involves three basic components: estimating revenues, estimating costs, and reconciling revenues and costs to assure financial constraint. This issue section is designed to act as a primer / anthology on financial planning information for MPOs which links the user with available resources. It is composed of three parts:

- **Issues Outline**

  This part serves as an index which links the major issues and steps in financial planning to various sources of guidance and information. These issues include revenue estimation, cost estimation, and revenue / cost reconciliation.

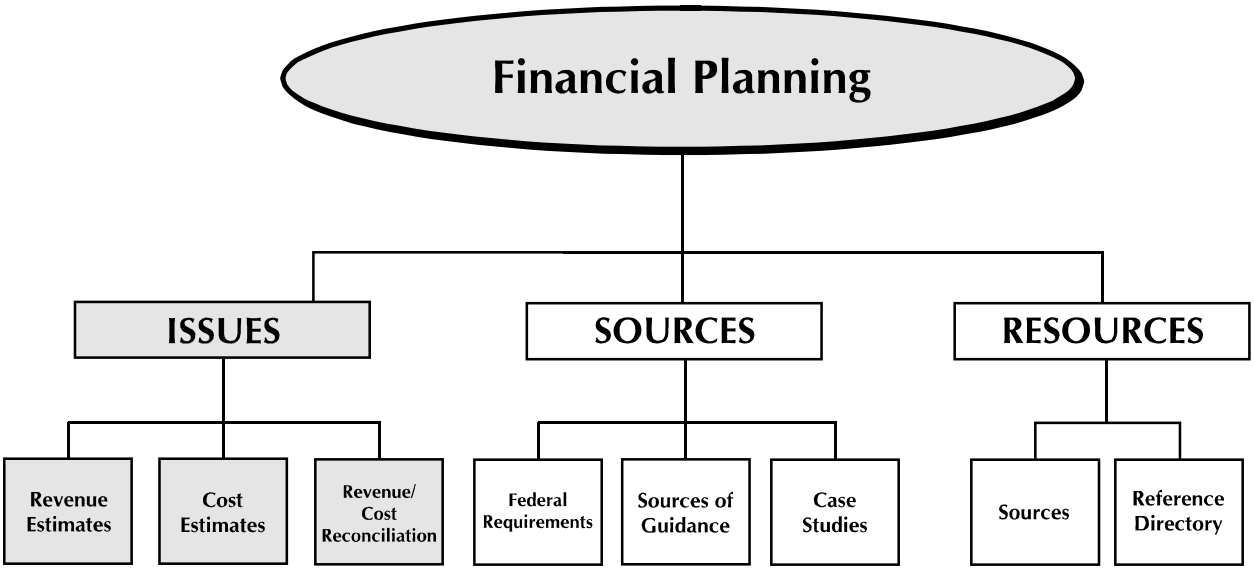
- **Sources Outline**

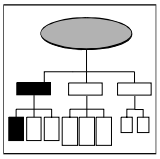
This part provides excerpts and highlights from the Federal financial planning requirements for MPOs, eight sources of guidance on financial planning, and 15 case studies.

- **Resources**

  This part includes a sources bibliography and a reference directory. The sources section provides bibliographic information plus information on how to obtain copies of source material. The reference directory provides a listing of national and regional organizations which have additional information that may assist MPOs in better understanding the financial planning process.

Issues Outline





ISSUES OUTLINE

This section is an index linking the major issues and steps in financial planning to various sources of guidance and information. The major issues associated with financial planning for MPOs (revenue estimation, cost estimation, and revenue / cost reconciliation) are presented below in outline form, with links to locations in the sources outline. Sources beginning with "B" are guidance documents, and sources beginning with "C" are case studies. For each issue, links are listed in order of the sources outline. The text of Federal laws and regulations applicable to financial planning for MPOs is given in part "A" of the sources outline.

A. REVENUE ESTIMATES

Financial planning requires MPOs to estimate future revenues from federal, state, local, and private sources which will support projects proposed by TIPs and LRTPs. TEA-21 requires MPOs and states to cooperatively develop estimates of funds which will be available to support plan implementation. The state and the transit operator are two excellent sources of information available to an MPO for data supporting revenue estimates.

This section will direct the reader to:

- Information regarding where to find data sources for federal, state, local, and private revenues; and

- Information about the process of revenue estimation (revenue forecasting methods, appropriate assumptions in revenue estimation, local governments' involvement in revenue estimation, and innovative financing techniques).

1. Data Sources

a. Federal

(1)	B1	h.(1)
(2)	B2	a.(1) - (2)
(3)	B4	
(4)	B6	c.(1)
(5)	C1	a.(4)(a)
(6)	C1	b.(3)(a)
(7)	C6	d.(1)
(8)	C15	b.(1)

b. State

(1)	B1	h.(2)
(2)	B4	
(3)	B6	c.(2)
(4)	C1	a.(4)(b)
(5)	C1	b.(3)(b)
(6)	C5	c.(1)
(7)	C6	d.(2)

c. Local

(1)	B1	h.(2)
(2)	B2	a.(3)
(3)	B2	a.(5)
(4)	B2	b.
(5)	B2	d.(3)
(6)	B6	c.(3)
(7)	C1	a.(4)(c)
(8)	C1	b.(3)(c)
(9)	C6	d.(3)
(10)	C13	b.

d. Private

(1)	B1	h.(2)
(2)	B2	a.(4)
(3)	B2	b.

2. Technical Processes

a. Revenue Forecasting Methods

(1)	B1	f., l.
(2)	B2	c.
(3)	B7	e.(1) - (2)
(4)	C1	a.(4)
(5)	C4	a. - b.
(6)	C6	c. - d.
(7)	C7	b.(1)
(8)	C8	b.(1)
(9)	C10	b.
(10)	C12	b.(2) - (4)
(11)	C15	a.

b. Appropriate Assumptions in Revenue Estimation

(1)	B1	c. - d.
(2)	B1	h.(3)
(3)	B2	d.(2)

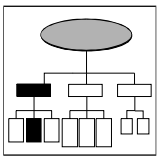
(4)	B3	
(5)	B5	
(6)	B6	a. - b.
(7)	C1	b.(1)(b)
(8)	C3	b.(1)
(9)	C3	d. - e.
(10)	C5	c.(2)(c)
(11)	C7	b.(2)(f)
(12)	C10	b.
(13)	C13	a.
(14)	C14	a.(2)
(15)	C14	b.(1)

c. Local Governments' Involvement in Revenue Estimation

(1)	B1	i.(2)
(2)	B7	c.(2)
(3)	B7	e.(1)
(4)	C1	a.(3)(b)
(5)	C1	b.(1)(a)
(6)	C1	b.(3)
(7)	C3	a.
(8)	C3	b.(2)
(9)	C3	d.(2)
(10)	C4	a.(3)
(11)	C4	c.(3) - (4)
(12)	C5	a. - c.
(13)	C6	b.
(14)	C10	b.
(15)	C11	b.(2)
(16)	C15	b.(1)

d. Innovative Financing Techniques

(1)	B1	h. - i.
(2)	B2	b.
(3)	B2	d.(1)
(4)	B2	d.(4)
(5)	C2	b.(2)
(6)	C7	b.(1)
(7)	C10	b.
(8)	C11	c.(1)



B. COST ESTIMATES

MPOs must consider capital, operational, and maintenance costs for the transportation system in plans and programs. Cost estimation is generally viewed as part art, part science, and part politics (Cambridge Systematics, 1995). MPOs are frequently given project-level capital cost estimates by staff of implementing agencies. Often, these project-level cost estimates vary greatly in detail and accuracy. Staff should consider carefully scrutinizing project-level submissions and developing independent, system-level capital cost estimates (Science Applications International Corporation, 1998).

This section will direct the reader to:

- Information regarding where to find data sources for capital, operational, and maintenance cost estimates; and

- Information about the process of cost estimation and local governments' involvement in cost estimation.

1. Data Sources

a. Capital

(1)	B1	g.(1)(a) - (b)
(2)	B7	d.(2)
(3)	C1	a.(3)(a)

b. Operational & Maintenance

(1)	B1	g.(1)(b) - (c)
(2)	B1	g.(3)
(3)	B7	d.(2)
(4)	C5	c.(1)
(5)	C7	b.(2)(b)
(6)	C7	b.(2)(d)
(7)	C8	b.(2)(b)
(8)	C11	c.(1)
(9)	C13	a.(2)
(10)	C15	a.

2. Technical Processes

a. Project Cost Estimation

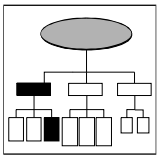
(1)	B1	f. - g.
(2)	B7	d.(1),(3)
(3)	C1	b.(2)(a)

(4) C8 b.(1)
(5) C12 b.(5)

b. Local Governments' Involvement in Cost Estimation

(1) B1 g.(2)(a)
(2) C1 b.(2)(b)
(3) C2 a.(3)
(4) C3 c.(2)(a)
(5) C4 c.(4)
(6) C5 a. - c.
(7) C6 b. - c.
(8) C7 a.
(9) C9
(10) C11 b.(2)

C. REVENUE/COST RECONCILIATION PROCESS



At the heart of financial constraint is the idea that, within plans and programs, total costs cannot exceed total revenues. Projects cannot be unfunded; plans cannot be "wish lists." Therefore, revenues and costs must be reconciled. While expenditures must be constrained, innovation should be encouraged. The TIP and the LRTP may include, for illustrative purposes, additional projects that would be included in the plan or program if reasonable additional resources beyond those identified in the financial plan were available.

This section will direct the reader to:

- Information regarding the process of matching proposed projects to revenue sources; and

- Information about incorporating illustrative projects with potential new revenue sources into plans and programs.

1. Matching Proposed Projects to Revenue Sources

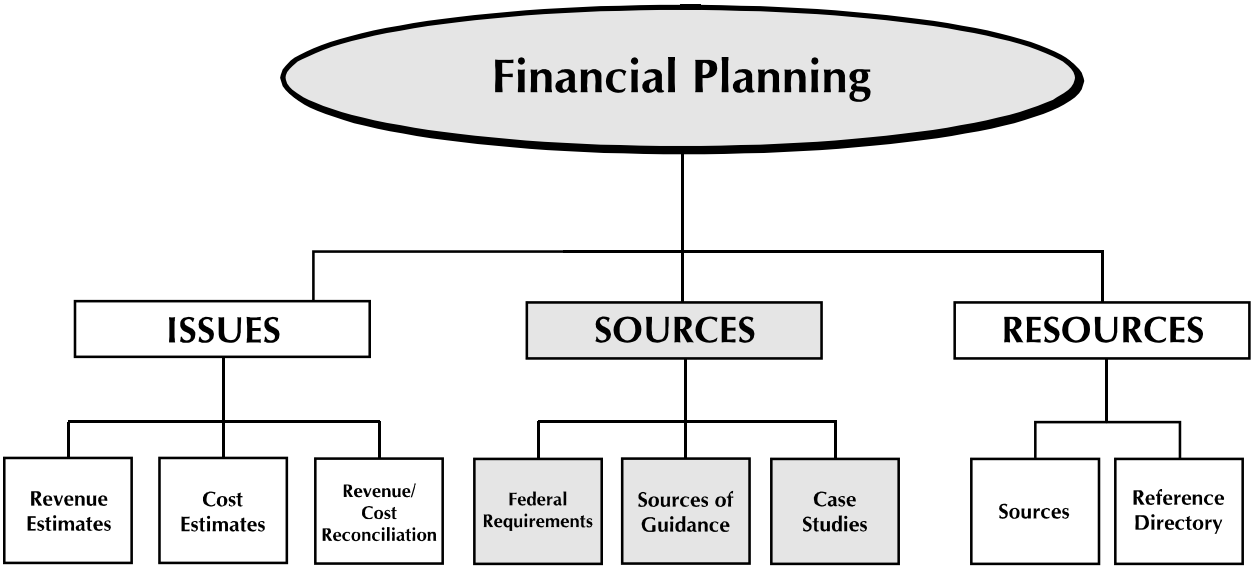
(1) B7 c.(1)
(2) B7 f.
(3) C1 a.(5)
(4) C1 b.(4)
(5) C2 a.(3)
(6) C4 a.
(7) C4 c.(5) - (6)
(8) C6 b.(2)
(9) C6 e.

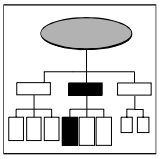
(10)	C7	b.(1)
(11)	C7	b.(2)(c)
(12)	C7	b.(2)(e)
(13)	C11	c.(2)
(14)	C13	a. - b.
(15)	C13	c.(3)
(16)	C14	a.(1)
(17)	C14	b.(1)
(18)	C15	a.

2. Including Illustrative Projects With Potential New Revenue Sources

(1)	B1	h. - i.
(2)	C3	b.(2)
(3)	C3	c.(1)
(4)	C10	a.
(5)	C11	c.(1)
(6)	C13	a.(1)
(7)	C13	c.(2) - (3)
(8)	C15	b.(2)

Sources Outline





Sources Outline

A. FEDERAL REQUIREMENTS FOR FINANCIAL PLANNING AND CONSTRAINT

1. Existing ISTEA Regulations

a. Financial Requirements for Metropolitan Transportation Plans: 23 CFR 450.322(b)(11) (U.S. Department of Transportation, 1998e)

The metropolitan transportation plan shall: "[i]nclude a financial plan that demonstrates the consistency of proposed transportation investments with already available and projected sources of revenue. The financial plan shall compare the estimated revenue from existing and proposed funding sources that can reasonably be expected to be available for transportation uses, and the estimated costs of constructing, maintaining, and operating the total (existing plus planned) transportation system over the period of the plan. The estimated revenue by existing revenue source (local, state, and Federal and private) available for transportation projects shall be determined and any shortfalls identified. Proposed new revenues and/or revenue sources to cover shortfalls shall be identified, including strategies for ensuring their availability for proposed investments. Existing and proposed revenues shall cover all forecast capital, operating, and maintenance costs. All cost and revenue projections shall be based on the data reflecting the existing situation and historical trends. For nonattainment and maintenance areas, the financial plan shall address the specific financial strategies required to ensure the implementation of projects and programs to reach air quality compliance."

b. Financial Requirements for TIPs: 23 CFR 450.324(e) (U.S. Department of Transportation, 1998e)

"The TIP shall be financially constrained by year and include a financial plan that demonstrates which projects can be implemented using current revenue sources and which projects are to be implemented using proposed revenue sources (while the existing transportation system is being adequately operated and maintained). The financial plan shall be developed by the MPO in cooperation with the State and the transit operator. The State and the transit operator must provide MPOs with estimates of available Federal and State funds which the MPOs shall utilize in developing financial plans. It is expected that the State would develop this information as part of the STIP development process and that the estimates would be refined through this process. Only projects for which construction and operating funds can reasonably be expected to

be available may be included. In the case of new funding sources, strategies for ensuring their availability shall be identified. In developing the financial analysis, the MPO shall take into account all projects and strategies funded under title 23 U.S.C., and the Federal Transit Act, other Federal funds, local sources, State assistance, and private participation. In nonattainment and maintenance areas, projects included for the first two years of the current TIP shall be limited to those for which funds are available or committed."

c. Consideration of Financial Plans, 23 CFR 450.330(b)
(U.S. Department of Transportation, 1998e)

". . . As part of their review in nonattainment areas requiring TCMs, the FHWA and the FTA will specifically consider comments relating to the financial plans for the plan and TIP contained in the summary of significant comments required under §450.316(b)."

2. New Requirements from Transportation Equity Act for the 21st Century
(U.S. Department of Transportation, 1998b)

a. New Financial Planning Requirements for Long-Range Transportation Plans

This section increases the clarity of financial planning requirements for MPOs in conjunction with development of long-range transportation plans. It makes clear the States' roles in cooperating with MPOs to develop funding estimates.

TEA-21 §1203(g)(3) strikes 23 U.S.C. 134(g)(2)(B) and inserts the following:

A long-range transportation plan shall contain, at a minimum, the following:
"(B) A financial plan that demonstrates how the adopted long-range transportation plan can be implemented, indicates resources from public and private sources that are reasonably expected to be made available to carry out the plan, and recommends any additional financing strategies for needed projects and programs. The financial plan may include, for illustrative purposes, additional projects that would be included in the adopted long-range transportation plan if reasonable additional resources beyond those identified in the financial plan were available. For the purpose of developing the long-range transportation plan, the metropolitan planning organization and State shall cooperatively develop estimates of

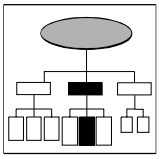
funds that will be available to support plan implementation."
TEA-21 §3004 (e) (1) (B) replaces 49 U.S.C. 5303 (f) (1) (B) (iii) which required MPOs make recommendations for innovative financing techniques in the long range plan. The new requirement mandates an MPO develop a long range transportation plan which "(iii) recommends any additional financing strategies for needed projects and programs."

b. New Financial Planning Requirements for TIPs

TEA-21 §1203 (h) replaces 23 U.S.C. 134 (h) (2) (B) with the following: The metropolitan transportation improvement program shall include:
"(B) a financial plan that:

(i) demonstrates how the transportation improvement program can be implemented;
(ii) indicates resources from public and private sources that are reasonably expected to be available to carry out the program;
(iii) identifies innovative financing techniques to finance projects, programs, and strategies; and
(iv) may include, for illustrative purposes, additional projects that would be included in the approved transportation improvement program if reasonable additional resources beyond those identified in the financial plan were available."

TEA-21 §3005 (b) strikes 49 U.S.C. 5304 (b)(2)(C) which required MPOs to recommend innovative financing techniques in TIPs. The new law requires MPOs to include a financial plan in the TIP which "(C) identifies innovative financing techniques to finance projects, programs, and strategies, which may include, for illustrative purposes, additional projects that would be included in the approved transportation improvement program if reasonable additional resources beyond those identified in the financial plan were available."



B. SOURCES OF GUIDANCE

1. Financial Planning and Programming for MPOs Seminar
(Science Applications International Corporation, 1998)

a. Course Description

This two and one-half day training course, offered by the National Transit Institute, is designed to help state DOTs and MPOs respond to requirements for improved financial planning and fiscal constraint. The seminar offers an opportunity for MPO staff to upgrade skills related to new procedures, revenue forecasting methods, and cost estimation

techniques. The course manual is available on-line at policy.rutgers.edu/nti/. It includes 8 main units, an introduction, a case study exercise, available financial planning resources (from FTA Technical Assistance), examples of current practice, a comprehensive problem, a reference section, and a glossary of terms. Course and manual topics include:

- Federal laws and regulations regarding the preparation of financially constrained transportation plans and transportation improvement programs;
- Principles for integrating metropolitan and statewide plans and programs;
- Funding programs within ISTEA;
- Fundamentals of financial analysis and financial planning as they apply to transportation practices;
- Basics of cost estimation including life-cycle costing;
- Basics of revenue forecasting including cash flow analysis and risk assessment;
- Evaluation of estimates and forecasts developed by others; and
- Availability and utility of various software packages that can be used to assess financial capacity.

b. Unit 1: Financial Planning and Programming Process

This unit includes a description of the need for guidance in financial planning, the characteristics of financial planning, and the context for MPOs' financial planning.

c. Unit 2: Federal Perspective

This unit describes the requirements for metropolitan planning and programming. It delineates the financial planning responsibilities of an MPO in developing LRTPs, TIPs, and MISs. It also describes the categories of funding sources:

- Available Funds

Funds derived from an existing source of funds dedicated to or historically used for transportation purposes which the financial plan shows to be available to fund projects.

- Reasonably Available Funds

Any new funding sources that do not currently exist or require some steps (legal, executive, legislative, etc.) before a jurisdiction, agency, or private

party can commit such revenues to transportation projects. A specific plan of action that describes the steps that will be taken to ensure that the funds will be available within the time frame shown on the financial plan must be provided.

- Not Reasonably Available Funds

  1. *When past efforts to enact new revenue sources have generally not been successful;*

  2. *the extent of current support by public, elected officials, business community and/or special interests indicates passage of a pending funding measure is doubtful; and*

  3. *no specific plan of action for securing the funding source and/or other information that demonstrates a strong likelihood that funding secured will be available*

d. Unit 3: Financial Plan Elements

This unit provides general guidance on the development of financial plans, and it proposes an approach to preparing a financial plan. The approach has five steps:

Step 1: Identify Plan Revenues

a. "Classify revenues into 'available' and 'reasonably available' categories."

b. "Project revenues, by source, over the programming period — 20-years in the case of Metropolitan Transportation Plan or 3 to 5 years in the case of a TIP.

"Revenues from various federal, state, and local sources are identified and forecast. In developing a 20-year Transportation Plan an assumption regarding the availability of federal funds must be developed. Guidance provided by FHWA/FTA regulations suggests that currently authorized and/or appropriated levels of funding be extrapolated into the future to provide an estimate of federal resources from historically available sources. A similar approach can be undertaken to project resources from other state and local sources which have been historically available for transportation.
"Federal Section 3 discretionary and 'demo' projects are to be treated as 'reasonably available new source.' In the case of

other new federal, state, or local sources, it is expected that information describing the steps to procure this new revenue source will be provided in the financial plan."

Step 2: Identify Plan Costs

"Compile information describing the capital, operating, and maintenance costs of the transportation system including highways and public transit. Maintenance costs are to include operations and other program support costs."

Step 3: Allocate Plan Revenues to Plan Costs

a. "Project revenues are to be allocated to project costs based on funding eligibility requirements as well as regional priorities. Emphasis is to be placed on maintaining the current transportation system, implementing Transportation Control Measures (TCMs) and fulfilling the requirements of the Americans with Disabilities Act before any additional system expansion is to be considered."

b. "Identify funding shortfalls (if any) over the system maintenance requirements as well as any proposed system expansion projects."

Step 4: Identify Strategies to Fund Any Identified Shortfalls

"Modify the program to eliminate or reschedule projects and/or develop new funding sources to implement priority projects."

Step 5: Prepare Financial Plan

"Develop a financial plan that outlines revenues, costs, and shortfall financing strategies."

e. Unit 5: Financial Planning Principles

Unit 5 presents general financial planning concepts, such as interest rates, inflation, and the time value of money. It discusses the economics of public finance (features of fixed income securities, municipal bonds, and tax-exempt market trends). It also presents techniques to evaluate municipal bond issues.

f. Unit 6: Financial Forecasting Methods

"Forecasting is an art and a science. Value judgments and policy considerations are as important to producing good forecasts as the availability of accurate and up-to-date information. In addition, expert judgment based on intuition, experience, and the ability of the forecaster to integrate information and interpret policy implications of the results is crucial in providing credibility to the forecasts."

(1) Forecasting Techniques

(a) Expert Judgment

- "This technique relies on the experience, knowledge, and perceptions of one or more experts."
- "This technique generally is inexpensive, requires limited data, and produces quick results."
- "Problems associated with this technique include the subjective nature of the judgment and the potential risk associated with the knowledge belonging to one expert who may leave the organization. Forming a panel of experts may mitigate this problem."
- "Pure expert judgment is rarely seen in practices. Generally, expert judgment is used to supplement other forecasting techniques as a 'reasonableness' test."

(b) Trend Analysis

- "Forecast costs or revenues as a function of only one variable: time."
- "Trend analysis usually requires a data base that goes back several years. The most common assumption used in this approach is that the growth rate will be the same in the future as it was in the past (baseline forecast)."
- "Since this method will obviously not predict a 'turning point' in economic conditions, it is important to combine this forecasting technique with professional judgment."
- "Trend analysis is inexpensive, easy to understand and apply, requires little data, and is not time consuming. Its usefulness diminishes as the forecast horizon is extended."

"The functional forms generally include:

- *"linear forecasts,* which calculate the historical linear trend in a revenue or expenditure item and project the trend into the future."

- *"exponential forecasts,* which calculate the same historical trends, but assume that growth in revenues or expenditures is exponential as opposed to constant straight-line growth assumed in linear forecasts."

(c) Component Forecasts

- "Disaggregates the revenue or expenditure into component variables; is similar to trend analysis, but considers more than one variable."

- "The amount of data required varies with the extent of disaggregation. This approach, like the single variable trend analysis, does not consider the effects of changing economic conditions. Additionally, this approach assumes fixed relationships between inputs and outputs and activities."

- "Supplementing this approach with expert judgment can improve results."

(d) Statistical Models

- "Define statistical relationships between revenues or costs and other variables. Independent econometric equations and regression analysis describe the causal relationships between the explanatory variables and revenues or costs."

- "This approach provides greater opportunity for policy analysis; however, the associated cost and lack of adequate data may limit its applicability."

(2) Selection of Forecasting Technique

"Selecting the type of forecasting technique to be used depends on the

following factors:

- "Availability and quality of data;
- "Resources available for the effort;
- "Personal preferences of the analyst."

"Practicality will normally determine the type of forecasting technique to be applied. Even with plentiful amounts of data, a study with limited financial or technical ability will rely on the least sophisticated techniques"

(3) Forecast Error

The three sources of forecast error are: specification error (the inclusion of unnecessary variables or the exclusion of necessary variables), measurement error (inaccuracies in data), and calibration error (the use of data with measurement errors and the building of a forecast model with specification error).

(4) Ethics in Forecasting

(a) The Role of Assumptions in Forecasting

"Many of the forecasting techniques applied in the conduct of financial planning require the establishment of various assumptions. The assumptions concerning such factors as the rate of inflation, cost of capital, ridership and revenue can have a significant impact on the results of any forecast. The financial forecaster must exercise a systematic and objective process to establish these key assumptions in order to avoid the pressure of bending results to suit political ends. Part of conducting a sound forecasting process includes the establishment of an organizational system and assignment of responsibility for activities such as:

- "reaching consensus on key assumptions and methods;
- "developing a common database to be used as input to the forecasting models;
- "reviewing and evaluating the methodology;
- "adopting the forecasts; and
- "monitoring and adjusting the results.**"**

(b) Forecasting Principles

"The following set of principles examines the forecasting process and discusses ways to adhere to these principles:

- "Objectivity - forecasts of revenues and costs are sensitive to policy inputs; therefore. there is a tendency for political factors to interfere in the preparation of forecasts. Separation of the technical from the policy aspects of forecasting has been advocated as a means to achieve objectivity. It also promotes professionalism among the forecasters by insulating staff from political pressures."

- "Credibility - forecasts are as good as the users and the public believe they are. These opinions are influenced by the previous performance, reputation, integrity, and esteem of the persons preparing the forecasts. An increasing number of policy makers wants to be able to understand the approach, have input into adoption of the basic assumptions, and be informed of policy implications of the forecasts."

- "Accountability - Both technical and policy oversight are needed in forecasting to ensure accountability. Assigning responsibility for specific aspects of forecasting to different entities ensures accountability. For example, policy makers should be responsible for making judgments regarding key assumptions and for considering the policy implications of the forecasts."

- "Consistency - It is important that forecasters rely upon a common data base as input and the same key assumptions for policy and exogenous variables."

g. Unit 7: Cost Estimating

(1) Basic Principles

(a) Capital Improvement Planning Process

"Capital planning is the process used to define the requirements and timing of facility development and replacement. Among other things, the capital planning process enables management to determine its capital requirements and consider optimal means for obtaining capital.

"Historically, much of the planning activities undertaken as part of metropolitan transportation planning can be considered a capital improvement planning process. This metropolitan transportation planning process has consisted of the following steps:

- "Identifying potential capital improvements;
- "Estimating project costs;
- "Evaluating project benefits; and
- "Prioritizing projects."

(b) Project Cost Components

"Project costs consist of initial costs, capital costs, and the additional operating and maintenance (O&M) costs specifically associated with the project. . . . The initial costs include the cost of project planning and design such as preliminary engineering and feasibility or planning studies. . . . Capital costs include the costs of acquiring land for improvement, constructing the highway or transit project, installing signals and other traffic control equipment, and the costs of purchasing, shipping, and testing the buses or rapid transit cars. . . . The O&M costs include the incremental costs of the system operations and maintenance that result from the improvement. Examples include additional toll operators hired for a new toll road; new bus mechanics hired to maintain additional buses; or any additional fuel, electricity, lubrication, insurance, parts, rental property, or contracted services that the improvements require."

(c) Capital Cost and O&M Cost Interrelationships

"The proposed capital program can have a significant impact on O&M costs. Certain types of capital expenditures can be justified on reducing —or slowing the growth of— O&M costs. Conversely, deferral of some capital expenditures can have a serious impact on O&M costs."

"Some capital expenditures (e.g., the implementation of a new service mode) will increase O&M costs. Other expenditures (e.g., vehicle rehabilitation) may produce higher O&M costs in the short term, but will produce cost reductions over the longer term. Finally, other expenditures (e.g., purchase of articulated buses) can produce intermediate O&M cost savings. . . . The process of determining the O&M cost impact of capital expenditures involves two basic steps:

- "Identifying the likely areas of impact—the O&M cost categories that can be greatly affected by capital investments include labor, materials, energy, and rents/ leases.

- "Quantifying the impact—can best be accomplished by considering overall system O&M cost impacts of capital investments."

(2) Overview of Capital Cost Estimating

(a) Role of MPO Staff

"The staff of Metropolitan Planning Organizations do not typically prepare detailed cost estimates for projects. Normally, MPOs are provided cost estimates prepared by staff of implementing agencies such as state DOTs and operators of public transit in the region. These cost estimates are developed using a variety of techniques and vary in detail and accuracy depending upon the level of planning. For example, cost estimates for long-range planning at a systems level for a project are not as detailed as an engineer's estimate for the same project at the programming level.

"MPO staff may desire to prepare systems-level cost estimates for long-range planning purposes and this discussion is designed to provide an example of a systems-level costing approach which can be used for long-range planning."

(b) Description of System Level Costing

"System-level cost estimation is a practice that uses local project cost experience to provide the basis for cost estimates for candidate costs. It is considered 'system-level' because it is primarily valuable in considering alternative actions at the system level of analysis. It is primarily useful for long-range planning efforts, in which financially constrained systems plans are required but information is not sufficient to estimate detailed quantities and unit costs.

"In system-level cost estimating, the basic unit of cost estimation for highway projects is miles of roadway constructed, reconstructed or resurfaced, rather than the cubic feet of fill or tons of asphalt required. The basic units for intersection work are the number of intersections improved, lane miles of highway added, rather than the number of signal heads and wiring required.

"In system-level costing for public transit projects, the basis unit of cost estimation may be the miles of track to be constructed in the case of a new start or the number of vehicles to be purchased in the case of a vehicle acquisition program.**"**

(c) Overview of System Level Costing for Transit Projects

"Capital cost estimating for transit projects requires the development of average unit cost values for system elements and multiplication of these units costs by the number of elements to be procured or constructed. . . . Absent any locally derived unit cost data, secondary sources may be used such as the document entitled *Characteristics of Urban Transportation Systems* (DOT-93-07) available from the Technology Sharing Program."

(3) Operating and Maintenance Cost Estimating

(a) Selecting an Approach

"In some cases, selecting the most appropriate methodology for estimating O&M costs will be influenced by the time horizon and the operating scenario for which the projections are to be made. The time horizon will influence the level of detail that will be possible in projecting O&M costs. For short time horizons (1 to 3 years), a high level of precision is possible because operating plans, capital improvements, labor contracts, and supply costs are likely to be well-established. As the time horizon for projections grows longer, many cost factors will be uncertain and detailed projections could be inaccurate.

"Expectations with respect to future operations will probably be the most important factor in projecting future O&M costs. Possible future operating scenarios would include continuation of the status-quo, major service re-design (including service expansion, contraction, or privatization), and implementation of capital projects (such as new vehicles, new facilities, or the introduction of new modes). It is possible to project O&M costs for a stable system using simple techniques and still provide reasonably accurate estimates. If the system is changing over the course of the time horizon for cost projections, more detailed estimating models may be appropriate."

(b) Resource Build-up Models

"The class of approaches called *resource build-up* or *causal factors* models provides the most detailed estimates of O&M costs. At its most detailed level, the resource build-up method is, in effect, like preparing an operating budget for the years for which projections are made. It provides the most accurate costs estimates and is the methodology recommended by FTA.

"Projections are made by estimating actual quantities of items required to provide the established level of services (such as operators, fuel, tires, etc.) and multiplying by the expected unit costs for labor and material. On the down side, this method is more time consuming and data-intensive

than other approaches, and the increase in accuracy is dependent upon having reliable base data and projections."

(c) Cost Allocation Models

"*Cost allocation models* are based on the allocation of system-wide costs to a number of factors. In the standard three-variable model, all O&M costs are assigned to one of three factors (i.e., vehicle hours, vehicle miles, and peak vehicles) based on the closest causal relationship. This method is very easy to calibrate and apply, but its ability to project future costs is quite limited. The aggregate cost in each category is divided by the quantity of that category (number of vehicle miles, vehicle hours, and peak vehicles) to produce a unit cost. Given the unit costs per factor, system-wide O&M costs can be allocated to specific routes or groups of routes."

(d) Trend Approach

"The *trend approach* does not attempt to break down costs into component or unit costs. Instead, it projects project costs based on aggregate trends. Future O&M costs are estimated based on overall inflation and past years' cost changes compared to inflation. This method is for use in stable operations only. For changes in operations, the resource build-up method can be used to supplement this approach by projecting the expected cost increases or decreases from the change and adding this to the overall trend projection of total costs.**"**

(e) Temporal Variation Model

"*Peak/base* or *temporal variation* models are enhancements of the basic cost allocation model and are designed to put more emphasis on accuracy in estimating operator labor costs. Because actual operator costs are based on the union labor contract and the scheduling of drivers, the relationship between the cost of service and level of service are quite complex. Given that operator wage cost is usually a large portion of total O&M costs, it is appropriate to give special attention to its estimation. The temporal variation class of models notes that service costs vary by time of day and attempts to improve allocation of these costs without actually producing a driver schedule."

(f) Regression Model

"*Regression analysis* is a statistical technique that uses a time series of data on total O&M costs and variables that influence costs (vehicle hours, vehicle miles, operator wage rate, etc.) producing an equation that

summarizes the relationship. The regression approach provides a more formal model than trendlining, but it is also limited to small changes in future operations. Past trends used to calibrate the model may no longer be relevant."

h. Unit 8: Revenue Sources

This unit describes trends in transportation revenues and potential federal and local sources of revenue available to finance transportation improvements. This section includes discussions of conventional and innovative sources of revenue.

(1) Federal Programs

- Interstate Maintenance
- National Highway System
- Surface Transportation Program
- Congestion Mitigation and Air Quality Program
- Bridge Replacement and Rehabilitation Program
- Federal Transit Administration Funding (Sections 3, 9, 18, 16b(2))

(2) Local Revenue Sources

- Local Option Motor Fuel Taxes
- Motor Vehicle Registration Fees
- Sales Tax
- Toll Financing
- Payroll Tax
- Property Tax
- Income Tax
- Severance Tax
- Drivers License Fees
- Transit Fares
- Parking Tax
- Utility Tax
- Lottery
- Leasing/Selling Development Rights
- Leasing/Selling Land or Facilities
- Public/Private Agreements
- Special Assessment Districts
- Impact and Utility Fees
- Tax Increment Financing
- Debt Financing

(3) Selecting Revenue Sources

(a) Evaluation Criteria

- Yield
- Stability
- Marketability
- Public Acceptance
- Equity
- Incentive Effects
- Legal and Regulatory
- Revenue Collecting/Monitoring Mechanisms

(b) Evaluating Revenue Sources

"The process of selecting revenues sources often takes place parallel with the development of specific transportation improvements. Therefore, typically two stages of evaluation of revenue alternatives are needed: (1) a preliminary screening, and (2) a full-detailed evaluation. The screening recognizes the fact that it is not possible to fully evaluate financing options until details have been worked out on the individual service or improvement alternatives and federal, state, and local legal and regulatory issues have been fully explored. At this stage, certain sources can be eliminated from further consideration. As the development of the improvement alternative proceeds, and details and costs become available, the revenue alternatives that have survived the preliminary screening can be further evaluated. This evaluation process basically involves conducting analyses of the ability of the revenue source to meet the revenue needs as well as further investigation of various political, legal, and administrative requirements."

i. Unit 9: Revenue Forecasting

(1) Grants from Federal, State, and Local Governments

"Where Long-Range Plan and TIP periods extend beyond the current authorization period for federal program funds or other governmental sources, a trend extrapolation approach can be used to estimate future funding. This trend can be based on the historical annual average plus an inflation component to account for growth in revenues."

(2) Transit Fare Revenue Forecasting

(a) Overview

"Fare revenue forecasting is the process used to determine the expected

amount of revenue that will be collected from transit users. Transit fare revenues are a function of the fare structure, fare levels, and ridership. Fare policy determines fare structure and levels. Travel demand forecasting projects ridership.

- Fare Policy

"Transit fare policy is generally set by the transit board, based on recommendations from staff and management. The fare policy defines the ridership groups (i.e., general public, elderly, disabled, school, etc.) and fare structure (e.g., distance-based versus flat fare)."

- Travel Demand Forecasting

"Ridership estimates can be derived using a variety of methods including network models, disaggregate demand models, and elasticity-based models. Network models are useful in both project-and long-range planning. Elasticity models are more frequently used to estimate short-range ridership impacts of changes in transit fare."

(b) Transit Fare Elasticity

"Experience has shown that an increase in transit fare will result in a decline in transit ridership. Therefore, increasing transit fares to increase revenue may not result in a net increase in total revenue. A *transit fare elasticity* is a measure that describes the relationship between fare increase and ridership demand. In general, a *fare elasticity* is a measure that describes the percent change in ridership which results from a 1% increase in fare.

"For example, a fare elasticity of -0.33 means that a 1% increase in fare will result in a 0.33% decline in ridership. . . . Transit users with limited mode choice options tend to not respond to transit fare increases to the extent that riders with other mode or travel behavior options respond. In general:

- "Ridership in smaller cities are more responsive to fare increases than ridership in large cities;
- "Off-peak riders are more responsive to fare increases than peak-hour riders;
- "Bus riders are more responsive to fare increases than rapid rail ridership; and
- "Non-work trips are more responsive than work trips."

(3) Taxes and User Fees

(a) Motor Fuel Tax Revenue

"Motor fuel tax revenue is a function of fuel consumption per vehicle class and the tax rate. Fuel consumption is affected by two key variables: vehicle miles of travel by resident and nonresident population and the fleet's average fuel efficiency (miles per gallon). . . . Motor fuel tax revenue methodologies vary depending on the region's needs and resources available."

- "*Trend Analysis* is used for short-term forecasts, the simplest approach would be to directly extrapolate past trends of fuel consumption, provided sufficient historic data are available. In addition, insignificant changes in fuel efficiency and driving habits (VMT/capita) over the short run must be assumed."

- "*Accounting Identity* [is the approach, where], the vehicle fleet is disaggregated into various vehicle classes (i.e, cars, trucks, etc.) and fuel efficiency estimates for each vehicle class along with estimates of annual vehicle miles of travel for each class, which are used to determine total fuel consumption. Revenue estimates are then developed by applying tax rates to estimates of total fuel consumption."

- "*Regression Model* is the approach, [where], a linear multiple regression equation can be developed to estimate total regional fuel consumption from a number of variables including vehicle miles of travel and average fleet fuel efficiency. The resulting estimates of total fuel consumption can be used to determine total revenues."

(b) Motor Vehicle Registration Fees

"Motor vehicle registration fees is a function of the number of vehicle registration and the fee rate. The vehicle weight and vehicle miles of travel are occasionally used as factors to set weight-distance tax. Scrappage and replacement rates for existing fleet may also be used. . . . Motor vehicle registration fees - several alternative approaches can be used depending on data availability and resources available."

- "*Trend Analysis* is used for short-term forecasts, the agency may extrapolate past trends in vehicle registrations. The underlying assumption here is that the past trend will continue in the future and there will be no major structural changes."

- "*Accounting Identity* [is the approach, where], total vehicle registration is the sum of existing vehicle registrations minus the registrations of those vehicles scrapped or moved out of the area."

- "*Regression Model* [is the approach, where], new registrations are affected by increases in the driving age population and by economic conditions affecting new vehicle purchases."

(c) Sales Tax

"Sales tax is a function of the tax and taxable sales. . . . Sales Tax - forecasting inflation adjusted sales permits treating inflation separate from quantity effects."

- "*Trend Analysis* is the method for short-term forecasts, the historical trend in sales tax growth can be used to determine future revenues."

- "*Accounting Identity* [is] the method in which historic sales subject to sales tax for various retail categories (i.e, building materials, general merchandise, food stores, restaurants, etc.) are used to project future sales by category. The sales tax rate is then applied to the total taxable sales to determine total revenues."

- "*Regression Analysis* can be used to predict future inflation adjusted sales as a function of several variables including population, employment, and income."

(d) Tolls

"Toll is a function of traffic volumes, traffic mix, proposed toll rates, and structure of tolls. . . . Tolls are forecasts prior to construction of toll facilities and are based on a two-step process: (1) projecting traffic volumes as if the facility were free from tolls and (2) testing the effects of alternative toll facility proposals on the toll-free traffic projections. [When f]orecasting revenues for existing tolls for existing toll facilities under stable condition the techniques of simple linear regression may be more appropriate."

(4) Use of Property and Property Rights

"Models of this source of revenue are dependent on the contract written to lease or sell the property involved. As such, it is not necessary to build a detailed revenue forecasting model. Rather, estimates of revenue streams can be developed from negotiating the one-time cash income or

income stream for the project.

"The revenue potential of such approaches is greatest in private sector projects with revenue-producing capacity. The more valuable the location, the more the developer is willing to pay for the right to develop it.

"Forecasts of revenues from the use of property rights rely heavily on expert judgment about conditions in the local real estate market. Agencies often use real estate consultants to confirm that lease terms are competitive. Terms of lease agreements vary. Some leases are based on a per square foot rate or a flat annual payment, while others provide for a minimum annual payment for the first 5 years, after which time the payment is supplemented by a percentage of the developer's income from the project."

(5) Benefit Sharing Strategies

"Once the level of benefits or impacts has been established, a special formula is developed to allocate assessments, fees, or contribution levels among property owners. Development of such a formula requires the following types of considerations:

- "The total amount of revenue required based on capital financing requirements, operating deficits, debt service, etc."
- "The basis for the assessment/fee/contribution rate (e.g., per square foot of new space, per $ value of assessed property value, per $ income from projected rent or retail sales, or per person trip generated)."
- "The temporal nature of the assessment or fee (i.e., one-time or annual, plus length of time if the latter)."
- "The treatment of existing, new and future development."
- "Differentiation in the rate based on relative degree of benefit or impact."

"Development impact fees are a function of the fee, size, timing, traffic impact, type of new development, and economic conditions affecting new starts. Special assessment revenues are essentially equal to the cost of the service they are intended to support. Assessments vary by two factors: (1) the total number of square feet in the area, and (2) the magnitude of the cost of the service. Once a formula has been established, the best way to model the income from these sources is with

a simulation model."

2. FHWA Financial Planning Technical Assistance
(U.S. Department of Transportation, 1994)

This document provides references to available reports, research, seminars, training, and software for financial planning. For each reference a contact name and phone number are provided.

a. Recent or Ongoing Reports/Research/Seminars

(1) Bond Financing & Credit Enhancement

"A seminar sponsored by the Secretary of Transportation, the Administrator of the Federal Highway Administration and the Administrator of the Federal Transit Administration was held on September 28, 1993 entitled 'Bond Financing and Transportation Infrastructure: Exploring Concepts and Roles.' The seminar specifically focused on both traditional use of bond financing and creative approaches involving credit enhancement, revolving funds, and tax law changes. The seminar highlights were published in report form. The contact point for this report is Tom Howard, 202-366-9208."

(2) Flexible Funding

"Reports entitled, 'Flexible Funding Opportunities for Transit' describe the various sources of flexible funding made available by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The report lists the amount of funding available by State and funding category which may be used for public transit, including, Congestion Mitigation and Air Quality (CMAQ), Surface Transportation Program (STP), and National Highway System (NHS), funding sources. The 1994 version details several examples of the use of flexible funding for transit projects. The contact point for these reports is Sean Libberton, 202-366-0055.

(3) Local Option Taxes

"1. A contract and report entitled, 'Impact of Local Option Highway Taxes on State Highway Programming and Aid.' was also completed in late 1993. The contractor was EBA, Inc. The report contains a twelve page executive summary and detailed documentation on the subject in six States (Arizona, California, Florida, Georgia, Alabama and Missouri). The following statement is contained int he executive summary of the report:

'...The principal objective of this study is to test the hypotheses that

> implementing local option taxes for highway improvements leads, directly or indirectly, to a decrease in federal and state aid for highway improvements. . . Our general conclusion is that state and federal aid did not change in response to adoption of local option taxes.'

"The contact point for this report is Bill Marley in FHWA, 202-366-5009.

"2. A contract entitled, 'Referenda on Local Option Sales Taxes for Highway Financing' is ongoing. The contractor is EBA, Inc. In the first task of the contract, over one hundred referenda in a dozen states were identified. The contract will examine any common features that seem to typify successful or unsuccessful referenda. The contact point for this contract is Bill Marley, 202-366-5009."

(4) Public Private Agreements

"1. A contract and report entitled, 'Experiences in Overcoming Federal, State, and Local Legislative/Administrative Barriers to Implementing Public-Private Highway Projects' was competed in late 1993. The contractor was Price Waterhouse. The report contains a six page summary and detailed documentation for twelve particular projects. In the summary of the report is a section on conclusions. The conclusions cite several 'lessons learned' in the contract. The lessons describe the importance of cooperation, coordination and active project level support (or lack of support) between the private sponsor, government and the general public. In the detailed documentation, each barrier to implementation is discussed including efforts (whether successful, partially successful or not successful) to overcome the barriers. The contact point for this report is Martin Weiss, 202-366-5010.

"2. A seminar was held on November 21, 1993, entitled 'Exploring Key Issues in Public-Private Partnerships for Highway Development.' The seminar provided an opportunity for participants representing a wide range of disciplines and interest groups to discuss a variety of policy issues related to public-private partnerships. A number of issues about the possibilities and problems of public-private partnerships were raised, showing that much remained to be learned about the consequences of applying partnering principles to transportation. The seminar highlights were published in report form. The contact point for this report is Ralph Erickson, 202-366-9235.

"3. A meeting was held in 1992 and resulted in a booklet entitled, 'Roundtable Discussion on Federal-aid Toll Financing Provisions.' The discussion covered a broad range of institutional relationships that are evolving across the U.S. and the potential that ISTEA offers to support mutual objectives. This discussion resulted from a 1992 meeting co-sponsored by the American Association of State Highway and

Transportation Officials, the International Bridge, Tunnel, and Turnpike Association, and FHWA to review toll road and public-private partnership provisions of the ISTEA and to discuss the implementation of these provisions from the standpoint of the State Highway Departments and the State toll authorities. The contact point for this booklet is Ralph Erickson, 202-366-9235.

"4. A brochure is available entitled, 'Building a Better Partnership: Public-Private Cost-Sharing and Toll Financing Provisions of the ISTEA.' This brochure was intended to highlight the public-private and cost-sharing opportunities provided by ISTEA. It explains the public/private partnership provisions of the ISTEA and urges State and local transportation and budget officials to investigate opportunities for implementing these provisions for their own jurisdictions. The contact point for this brochure is Ralph Erickson, 202-366-9235.

"5. A publication is available entitled, 'Guidance for State Implementation of ISTEA Toll Provisions in Creating Public-Private Partnerships.' This publication is a handbook on useful features in State legislation or ordinance to facilitate implementation of programs using public-private and public-public partnerships. FHWA is currently distributing this document to the States, FHWA field offices, and other interested parties (this publication and the previously noted brochure were developed under the contract with Price Waterhouse mentioned previously). The contact point for this publication is Ralph Erickson, 202-366-9235.

"6. A contract entitled, 'Transportation Investments and Economic Competitiveness: The Role of Public Private Partnerships' is [complete]. The contractor is the National Governor's Association. One of the tasks of the contract [resulted] in a workshop of state transportation policymakers and a report on the elements of a proposed policy framework for such partnerships. The contact point for this contract is Gerry Williams, 202-366-1203.

"7. On December 6, 1993, the Federal Highway Administration, under contract with Apogee Research, Inc., held a symposium in Washington, D.C., to discuss ways of overcoming barriers to public-private partnerships in highway transportation. A report on the symposium, which reviews reasons why the new flexibility for developing toll facilities with private sector participation provided by the ISTEA remains underutilized, [has been available]. The contact point for the contract and publication is Ralph Erickson, 202-366-9235."

(5) Public Transportation Financing

"1. A report entitled, 'Introduction to Public Finance and Public

Transportation' provides a comprehensive description of the elements of public finance, particularly as they relate to public transit issues. The report includes an overview of the public transit finance market, economics of the municipal bond market, various transit financing techniques, and cost reduction techniques, including joint development and lease options. The contact point for this report is Ed Thomas, 202-366-0264.

"2. A report entitled, 'Estimation of Operating and Maintenance Costs for Transit Systems' provides companion document for FTA guidance entitled 'Procedures and Technical Methods for Transit Project Planning.' The report includes operating experience of various transit operators that submit Section 15 reporting data and the detailed budgets of several representative transit systems with both bus and rail modes. The report is intended to show best practices which may be referenced for reasonableness checks of operating and maintenance cost estimates of planned transit systems or extensions. The contact point for this report is Ed Thomas, 202-366-0264."

b. Training Courses Available to State, Local, and Other Agencies

"A course entitled, 'Innovative Highway Financing - Overview', is available through the National Highway Institute. This is a one day course which discusses five types of innovative highway financing: Public/Private agreements, fees, special districts, innovative toll projects and local option taxes. This course is taught by the FHWA. The course became available for presentation in 1991 and has been presented many times. The contact for this course is Martin Weiss, 202-366-5010."

"A course entitled 'Innovative Highway Financing and Elements of Financial Planning: Technical Methodologies', is available through the National Highway Institute. This is a two day course which discusses the same types of financing as the previous course, but does so in more detail. In addition, the course incorporates computer workshops which utilize public domain software related to special districts, impact fees, toll rates and revenue and expenditure forecasts. This course is taught by a contractor with assistance from the FHWA. The contractor is the Government Finance Research Center of the Government Finance Officers Association. The course became available for presentation in 1993 and has been presented a number of times. The contact for this course is Bill Marley, 202-366-5009."

"A course entitled, 'Financial Planning for MPOs', [is] available through the National Transit Institute. ... [Science Application International Corporation will] be teaching the course. ... The contact point for this course is Ed Thomas, 202-366-0264."

c. Public Domain Software Available to State, Local, and Other Agencies

(1) DISTCALC

"A program is available called, 'DISTCALC', which is essentially a compiled Lotus spreadsheet with pull down menu. The program is based on a simplified planning situation and is useful for understanding how to accomplish a sketch plan level computation of assessments (based on value, front footage or leasable space) required to support the expenses of an assessment district (notably the debt service required for issuance of bonds to pay for highway or transit improvements). The program is taught as part of the course 'Innovative Highway Financing and Elements of Financial Planning: Technical Methodologies'. As with the two pieces of software described in the following two paragraphs, persons experienced with pull down menus and having some familiarity with the subject matter will probably be able to use the program without special instruction. A portion of the student material for the course discussed previously is the equivalent of a user's guide for this program. The contact point for this software is Bill Marley 202-366-5009."

(2) IMPCALC

"A program is available called, 'IMPCALC', which is similar to the preceding program but deals with the computation of impact fees required to fund added capacity on a simplified roadway network. The contact point for this software is Bill Marley 202-366-5009."

(3) TOLLCALC

"A program is available called, 'TOLLCALC', which is similar to the preceding program but deals with the computation of toll rates required to support project operation. The contact point for this software is Bill Marley 202-366-5009."

(4) THRIFT

"A program is available called, 'THRIFT (Transit and Highway Revenue and Improvement Forecasting Templates)', which is essentially a DBASE spreadsheet with specialized compilation. This program is useful for a sketch plan level of computing future highway and transit revenues and expenses based on the underlying policy variables (taxation rate, population, etc.). This program is more detailed than the preceding three; however, an extensive user's manual is available. Persons with extensive experience on DBASE type application programs and with extensive

knowledge of the subject matter will probably be able to use the program without special instruction. The contact point for this software is Bill Marley 202-366-5009."

(5) FINANCE PLAN

"A Program is available called, 'FINANCE PLAN', ... [which is] essentially a LOTUS spreadsheet with specialized compilation. This program may eventually be useful for tracking transit assets, revenues and expenditures. Once development of this software is completed, persons with experience using LOTUS and with extensive knowledge of the subject matter would probably be able to use the program without special instruction. The contact point for this software is Ed Thomas, 202-366-0264."

d. Other

(1) Innovative Highway Financing Project Database

"An electronic database is available on innovative highway financing projects (there is information on over 600 innovative financing projects or programs, including highway and transit, foreign or U.S.A.). A hard copy brochure and narrative update on an illustrative sample of these projects (public private agreements, fees, special districts, innovative toll projects, local option taxes) is also available. Finally, a videotape with options of State, local and private sector officials and other information of this kind is maintained to support the preceding products. The contact point for these materials is Bill Marley, 202-366-5009."

(2) Financial Planning Language in ISTEA

"A compilation of all the financial planning language in the ISTEA; the Statewide and Metropolitan Planning Regulation and Preamble, sorted by product (Statewide Plan, STIP, Long Range Metropolitan Plan, TIP) is available. The contact point for this compilation is Martin Weiss, 202-366-5010."

(3) Memoranda About ISTEA §1012 and §1044

"A number of FHWA memoranda have been issued as instructions for use in implementing Sections 1012 (Toll Roads, Bridges and Tunnels) and 1044 (Credit for Non-Federal Share) of ISTEA as well as for use in determining the non Federal share where donations occurs. The contact point for these memoranda is Jim Overton, 202-366-4653."

(4) Innovative Financing Test and Evaluation Project

"An Innovative Financing — Test and Evaluation Project has been established by FHWA memorandum of March 14, 1994. This project [developed] proposals to advance highway improvements via innovative finance methods where such improvements are advanced with expedited and flexible application of Title 23 U.S.C. statutory and regulatory requirements. The contact ... for this project [is] Jerry Poston, 202-366-0450 ... ."

3. Understanding the Required Financial Planning Process

a. Expectations of Financial Constraint
(U.S. Department of Transportation, 1998c)

"The plan should not be a 'wish list' with unfunded projects. An unconstrained plan avoids controversy [by] including projects from all constituents, but it lacks the discipline necessary to guide a metropolitan area toward programming scarce resources to solve combinations of air quality, mobility, growth or other pressing problems. Although the plan must be constrained and should develop realistic alternatives, it can also provide value by developing unconstrained alternatives as a means to advocate imaginative and challenging future visions of transportation systems for the metropolitan area. If alternatives are presented that are beyond the means of currently identifiable resources, projects can be prioritized to clarify what would be funded if different levels of new revenues are available.

"The ISTEA requires that plans be financially constrained over a 20 year time horizon, comparing existing and proposed revenues to costs of constructing and operating the planned system. TIPs and plans must be financially constrained and prioritized; over-programming is not allowed. For non-attainment areas, financial constraint is the key link between the CAA and ISTEA, with requirements for conformity reviews of both the plan and the TIP by the MPO, FTA, and FHWA" (pp. 17 - 18).

b. A Guide to Metropolitan Transportation Planning
(U.S. Department of Transportation, 1998a)

(1) Definition of Fiscal Constraint

"'Fiscal constraint' for transportation plans means that the total estimated costs of projects included in a plan cannot exceed estimated revenues and the estimated cost of constructing, operating, and maintaining the total (existing plus planned) transportation system over the period of the

plan. . . . For TIP's, financial constraint means funds must be identified for the period of the TIP and associated with specific projects" (pp. 26).

(2) Purpose of Fiscal Constraint

"The purpose of this requirement is to encourage good financial planning and to prevent plans and TIP's from becoming 'wish lists' of projects with no realistic chance of implementation. Without constraints, the need to make choices and set priorities is often ignored" (pp. 25).

(3) Guidance on Fiscal Constraint

"Below are suggestions to help MPO's in their financial planning.

- Revenue estimates and estimated costs of building, operating, and maintaining the transportation system in the metropolitan region should be developed, recognizing that uncertainties exist about the availability of funds from other agency's budgets, more reliable cost estimates will emerge from the project development and detailed planning process.

- Notwithstanding such uncertainties, the State, transit operators, and other involved agencies are encouraged to provide timely and accurate revenue estimates to the MPO concerning what sources and amounts of Federal and other funds they estimate will be available to the region.

- Realistic cost and revenue estimates should be incorporated into the goals, priorities, and criteria for transportation plan and TIP development. One reason for this requirement is that it prevents capital investments in new capacity while ongoing operations, rehabilitation, and maintenance needs go unfunded.

- Financial studies and cost projections should be documented in a consistent and realistic manner.

- All parties participating in the planning process should be informed about project costs and available financing.

- When a new revenue source is proposed in a plan or TIP, a reasonable and timely strategy for securing the additional revenue is essential.

"For example, funds requiring a technical change in a State tax law might reasonably be available if the new law has already received considerable support, although not formal approval, from the Governor and a majority

of the State legislature.

"However, reliance on funding from a ballot initiative that has failed five times may not be reasonable. Further, funds from a sales tax increase that will become available in 2 years from the effective date of the TIP may be assumed to be available in year three, but not year one or two of the TIP" (pp. 26).

4. Financially Constrained Transportation Planning and Programming

(Campbell, Fralick and Hartman, 1997)

This report discusses the experiences of MPOs working with state DOTs to implement projects with financially constrained TIPs and long-range plans. It addresses how MPOs and state DOTs interact in the exchange of financial data, how Federal obligation authority adjustments are made and how they impact planning efforts, and how TIPs and long-range plans are incorporated into statewide plans. The report had ten major findings in the following three categories:

a. Sharing Financial Information

"The quality and availability of the financial information used for planning and programming highway projects vary across states and MPOs. Some of the MPOs interviewed receive a complete breakdown of the sources of available funds while others receive lump sum forecasts that, among other things, can limit awareness of potential funding for transit. As a result, some MPOs appear to have a better understanding than others of the availability and eligibility of Federal funds.

"The MPOs interviewed were generally uninformed with regard to the status of the Federal and state funding availability and the status of MPO proposed projects during the fiscal year. While some of the MPOs received quarterly information that updates funding levels and the status of their projects, most MPOs often lack information necessary to determine the status of their projects. As a result, MPOs often do not understand how they are affected by program adjustments made by the state DOT during the year.

"MPOs work closely with the transit agencies that serve their areas in the development of the transit portions of the LRPs and TIPs. Transit agencies generally have their own capital improvement plans that are based on an understanding of their capital/operational needs, and their expected levels of traditional transit categorical funding provided by programs such as provided by 49 U.S.C. 5307 and 5309. MPOs rely

heavily on their transit operators to provide a financially constrained list of projects to be included in their LRPs and TIPs.

"All of the state DOTs interviewed indicated that they are reluctant to provide short and long range projections of future funding levels because such forecasting is difficult; and the DOTs do not want to be held responsible for inaccurate forecasts. Some state DOTs provide forecasts only if MPOs ask for them, others work with their MPOs to jointly develop forecasts, and others suggest methodologies that might be used by MPOs to develop their own forecasts. However, in most cases, the forecasts that are developed estimate the aggregate or total availability of Federal funding rather than the availability of individual program funds."

b. Obligation Ceiling Adjustments

"State DOT practices vary with regard to how obligation authority is assigned for the development of TIPs and LRPs.

"Some of the states interviewed instruct their MPOs to constrain their plans and programs to anticipated levels of FHWA apportionment plus categorical transit finds. Others constrain their plans based on anticipated Federal highway obligation ceilings plus the transit funds. In cases where states instruct MPOs to constrain LRPs and the programs based on obligation ceilings, the MPOs are somewhat more conscious of the obligation limitations and the state DOT's process of making adjustments.

"MPOs recognize that when a project is not ready for obligation (i.e., there are delays or schedule 'slips'), the obligation authority that would have been used for the project may be used on other projects in other regions. However, MPOs rarely know which projects or regions ultimately use the funding or obligation authority that had been reserved for them.

c. Integrating TIPs and Plans into State TIPs and Plans

"Integrating MPO Long Range Plans into state Long Range Plans is not straightforward. MPOs tend to produce financially constrained project plans while states generally produce unconstrained policy plans. As a result, it is difficult to specifically determine the relationship between MPO and state plans."

"Ultimately, the integration of MPO TIPs and STIPs occurs during negotiations that take place between the MPO and the state DOT. Some MPOs negotiate with regional DOT offices while others negotiate directly with their central DOT office. As a result, the nature of the negotiation process varies widely across states and MPOs.

"The content and format of MPO TIPs are not standardized and integrating them into STIPs can be difficult."

5. Innovative Practices for Multimodal Transportation Planning
(Transmanagement, 1998)

"The financial constraint requirements of ISTEA require MPOs and DOTs to demonstrate that there are reasonable sources of funding for projects included in their TIPs. In addition, ISTEA requires MPOs, but not state DOTs, to also demonstrate that reasonable sources of funding are available to finance the projects and activities included in their long-range plans . . ."

"The financial constraint provisions, which were intended, in part, to establish greater accountability and credibility in the development of transportation plans and programs, have presented new challenges to the planning and programming efforts of both MPOs and DOTs. To comply with the financial constraint requirements, these agencies were required to develop plans and programs that were more realistically based on identified and anticipated levels of existing and future transportation revenue. This approach resulted in many cases where the size and scope of plans and programs had to be scaled back to more accurately reflect anticipated levels of funding.

"While imposing financial constraint has clearly led to reductions in the size and scope of transportation plans and proposed programs, the impact, if any, that the provisions have had on transportation priorities and multimodal planning is unclear. The central objective of this research is to illustrate whether or not these provisions have changed planning and programming processes and their outcomes and, specifically, how they have affected multimodal planning."

The report identifies four main theses, as follows:

- Financial constraint requires decision makers to consider investment decisions more carefully
- Financial constraint discourages the "wish list"
- Financial constraint increases the demand for funds that are not restricted to any one mode
- Financial constraint limitations are imposed late in the planning process

6. Development of Financial Plans for Regional Transportation Plans
(Mann, Johnson and Tumidanski, 1997)

a. Definition of Financial Planning

"Financial planning can be defined as the determination and balancing of relevant sources of anticipated revenues and expenses over a set period of time" (pp. 143).

b. Nine Steps in the Financial Plan (pp. 145)

- Surveying traditional funding sources for all modes at all levels of government;
- Collecting/reviewing data that describe the historical trends in revenues;
- Choosing an appropriate method for forecasting funds;
- Identifying appropriate assumptions to guide the forecast;
- Conducting the forecast and reporting results;
- Local government review and comment on forecast results;
- Identifying needs, proposed solutions and relevant costs;
- Comparing available revenues with proposed expenditures and developing an investment strategy; and
- Identifying unmet needs of the transportation system.

c. Sources of Data and Forecast Methodology

(1) Federal

"For the federal fund portion of the forecast, the annual reports on Highway Statistics published by the Office of Highway Information Management of the Federal Highway Administration were the main sources for federal revenue and expenditure data. Unpublished reports prepared by the local office of the Federal Highway Administration were also used. These reports contained apportionment and allocation data for all federal-aid highway programs for the State of Michigan and the formula for distributing funds for individual programs to all urban and rural areas in the state. The Michigan Department of Transportation also provided supporting documentation for these data.

"Annual data on revenues collected for the 1978 to 1995 period for the state and region. Specific programs included in the pre-ISTEA Federal Aid Urban System, Federal Aid Secondary, Hazard Elimination and Rail Grade Crossing programs and the 85 Percent Floor Funds. Data on the Surface Transportation Program and the Minimum Allocation and Donor State Bonus programs were also collected" (pp. 145).

"[A]mong the major considerations in choosing an appropriate method were technical integrity, ease of application, compatibility with available

data and the ease of understanding the method and outcome by local governments. . . . The trend analysis for federal funding employed a relatively simple regression equation to 'straight line' the historic trend in annual revenues.

"The assumptions to any forecast are the backbone to a full understanding of the outcome. . . . More specifically, the assumption dealing with socioeconomic factors refers to economic trends that affect travel demand such as gross domestic product, population, employment, personal income, household income and the price of gasoline. These factors affected the generation of revenues in the historic period and it is assumed that these same relationships, while not specified here, will continue during the forecast period" (pp. 149).

(2) State

"The Transportation Economic Development Fund (TEDF) is also a major source of revenue for roadway and transit projects and so is a major element of the Financial Plan. This is a state program that includes a portion of federal Minimum Allocation and Donor State Bonus funds coupled with set-asides of state user fee revenue from the MTF [Michigan Transportation Fund] and driver license fee revenue from the state general fund. The Michigan Department of Transportation provided data on the annual transportation budget that identified the specific contributions to the TEDF.

"In most states, the state government has established a mechanism for collecting and distributing user fee revenue for improving all public roads. In Michigan, Public Act 51 of 1951 (as amended) directs the collection and distribution of revenues. The Act identifies sources of funding including fuel user fees, vehicle registration fees, driver license fees, interest on revenues, motor carrier fees, toll road and crossing facilities revenues and miscellaneous sources" (pp. 145 - 146). A linear trend model was used to forecast all MTP revenues.

(3) Local

"As with the MTF expenditures, data pertaining to transportation revenues at the local level were obtained from audited Act 51 data files. . . . The stream of local revenues dedicated for capital improvements to the transportation system has not been constant. . . . Furthermore, when analyzed at the individual community level, the revenue stream was quite inconsistent, often with very high revenues in a given year, followed by several years of lower revenues. It has been suggested that these fluctuating patterns of revenues are due to communities' saving their

funds over a period of time for a large project.

"A capital expenditure factor was developed ... approximating expenditures for capital improvements. . . . [T]his additional analysis provided us with information that was much closer to the communities' actual experience, yielding a capital expenditure factor of 20 percent" (pp. 147).

"The forecast of local tax revenues was based on the sources and data introduced previously. It was assumed that local communities would contribute to provide funding for transportation projects at least at the same rate as was done historically.

"Due to this fluctuation in revenues and the relatively short historical period, and to the data constraints, it was decided that an average of five years' historical revenues was preferred to a forecast based on historical trends, and was most comparable. As with the MTF forecast, only those revenues that were determined to be associated with capital expenditures were forecasted" (pp. 150).

7. Financial Planning in ISTEA
(Cambridge Systematics, Inc., 1995)

a. Included Case Studies

(1) Six Long Range Transportation Plans

- Middle Rio Grande COG
- Austin Transportation Study
- Champaign-Urbana Urbanized Area Transportation Study
- North Central Texas COG
- Kentuckiana Regional Planning and Development Agency
- San Diego Association of Governments

(2) Six TIPs

- Baltimore Transportation Steering Committee
- Champaign-Urbana Urbanized Area Transportation Study
- Kittery Area Comprehensive Transportation Study
- Kentuckiana Regional Planning and Development Agency
- San Diego Association of Governments
- Southwest Washington Regional Transportation Council

b. Case Study Organization

(1) Overall process: steps used in preparation of financial plan
(2) Cost estimation: methods to estimate capital and operating costs, responsible agencies, and MPO's role
(3) Revenue projection: MPOs role and critical assumptions used in projection of federal, state, and local revenue sources
(4) Cost/revenue reconciliation: how MPOs balance estimates of cost with revenue projections

c. Process

"For each case study, we requested the MPO staff summarize the process they followed to prepare their financially constrained RTP and / or TIP. Specifically, we asked them to lay out in sequential order the steps they followed and compare this process to their plan preparation procedures prior to the ISTEA. As a result of this line of inquiry, we identified two common difficulties."

(1) Initial Unrestrained Needs Assessment: Cutting Back to Reality vs. Building a Vision

(a) Description of the Difficulty

"Prior to the ISTEA, all of the case study MPOs initiated the preparation of their long-range plan (RTP) with a forecast of travel demand followed by an unrestrained needs assessment. Usually this step involved a review of the previous RTP's projects. The MPO would then update this wish list; usually by expanding the list with new projects or replacing completed projects with new ones. Finally, the MPO projected likely revenues.

"Because of the ISTEA financial constraint requirements, our case study MPOs appended the process outlined above with a final revenue / cost reconciliation step. This step usually reconciled the inevitable imbalance between costs and revenues from both ends: cost reduction and revenue enhancement."

(b) Case Study Experience

"Most of the case study MPO's defended their up-front needs assessment by asserting the RTP's role in framing a vision for the future. Constraining the RTP's vision to fit within the available funding, some MPOs argue, would blunt their efforts to pry more money from a reluctant traveling public or timid policy makers. In fact, many MPOs claimed that the final

step of reconciling the wish list of new projects with available revenues forced citizens and policy makers alike to make painful choices. Either they had to implement new sources of funding or delete cherished projects and accept consequent congestion."

"The final reconciliation did not always force such painful choices. Some MPOs masked the pain through the following treatments:

- More optimistic revenue assumptions;
- Revised (i.e., lower) cost estimates;
- More aggressive deferral of maintenance;
- More optimistic expectations of operational efficiency; and
- More optimistic forecasts of transit ridership.

"By no means did all MPOs engage in these treatments and none of them indulged to the point of producing an RTP that is grossly underfunded. Nevertheless, every MPO's unrestrained needs assessment required significant (and some times Herculean) efforts to reconcile the initial needs with available funding."

(c) Next Steps and Possible Assistance

"The rationale of giving policy makers the opportunity to create a long-range vision makes sense in theory. In practice, this approach appeared to be most successful when an MPO prepared a revenue forecast in parallel with the unconstrained needs assessment. The MPO's policy makers, local jurisdictions, and citizen advisory committee were forced early in their selection of projects to consider the financial constraints they would be facing later in the plan's development.

"An alternative approach initiates the process with a projection of available revenues. The San Francisco Bay Area Metropolitan Planning Commission (MTC), for example, employed this sequence. For its first financially constrained RTP, MTC followed the following steps:

- Forecast the total available revenues;
- Estimated the cost of operating the current system over the plan's horizon and deduct this from the total available revenues;
- Required planners to designate new projects within these financial constraints; and
- Developed a second tier of new projects that would be constructed if additional funding becomes available.

"Other MPOs may have engaged in a similar process or some other

completely different sequence of steps. Given that none of our case study MPOs varied significantly from the basic sequence, additional case studies should investigate RTPs prepared in a different sequence."

(2) Regional Goals vs. Local Autonomy: Bottom-Up vs. Top-Down Planning

(a) Description of the Difficulty

"All of our MPOs have had to contend with local jurisdictions' struggle for local autonomy over their short- and long-term planning. In theory, an RTP or TIP should set regional goals over local autonomy, but our case studies indicate some MPOs are ill-equipped to set regional policy and / or carry it out. The bottom-up versus top-down struggle is not new because of the ISTEA financial constraint requirements. The constraint requirement, however, has removed the option of simply allowing local jurisdictions to submit their entire wish lists for inclusion in the TIP or RTP, thus giving MPOs greater say in setting regional priorities. The shift, however, has not led to drastic restructuring of regional transportation plans."

(b) Case Study Experience

"Our case studies revealed a wide variation among the MPOs in their approach to financially constrained planning. After only one round of financially constrained planning it would have been naive to assume that MPOs with relatively less influence will increase their ability to effectively address regional goals over specific priorities of local jurisdictions. Nevertheless, the ISTEA financial constraint requirements helped some MPOs promote regional goals over local jurisdiction's priorities. The following observations are a synthesis from all twelve case studies and none are without exceptions:

- In general, the smaller metropolitan areas developed TIPs and RTPs that reflected the priorities of local jurisdictions. The larger metropolitan areas tended to assert regional goals and direct their RTP and / or TIP process.

- MPOs with sophisticated travel demand modeling, demographic forecasting, or revenue projection methodology usually could assert more regional emphasis over the TIP or RTP's goals. The case study MPOs that depend entirely on state DOT revenue projections usually have less control over project selection and / or project specification.

- Regions with higher growth rates and multiple, dense urban

communities emphasize more regional priorities in their RTP and TIP goals. The higher level of regional planning priorities is reinforced when the region has a complex transportation system which includes light rail and HOV lanes.

- MPOs with control over a regional funding source (e.g., sales tax, gas tax, state subventions, bonds, vehicle registration fees, etc.) tended to have more influence over allocating money between local and regional projects.

"The case studies indicate that the financial constraints have made it more likely that an MPO can exercise effective management over the process. The case studies do not indicate that more assertive MPOs are more efficient at producing financially constrained plans than MPOs that were forced to subordinate their regional goals to local jurisdictions. More authoritative MPOs are generally larger and have more complex RTPs and/or TIPs."

(c) Next Steps and Possible Assistance

"The ISTEA financial constraints will give MPOs the opportunity to promote regional priorities over local priorities. In order to fully realize this opportunity, however, FHWA and FTA should provide MPOs with more technical support. Without exception, our case study MPOs either benefited from their mastery over travel demand modeling, demographic forecasting, and revenue projections or suffered due to their lack of sophistication. While training and technical support are outside the responsibility of this report, MPOs, especially the less assertive, expressed some confusion (and identified some specific misunderstandings) over the ISTEA (and even their own state's) financial planning requirements."

d. Cost Estimation

"All of the MPOs we studied regard cost estimation as part science, part art, and a measure of politics. The ISTEA financial constraint requirements did not specify a rigorous detailed cost estimation methodology, and some MPOs found the hard choices could be softened through less conservative methodology or simply leaving out some detail. Intentional evasions aside, all MPOs struggled with their constituent agencies over the lack of consistent cost estimation methodology and widely varying levels of detail in project specification. The following two difficulties appeared most frequently among the nine MPOs we interviewed."

(1) Consistent Project Specification and Cost Estimation

(a) Description of Difficulty

"In general, MPOs divide projects into three categories: state roads (i.e., freeways), local roads, and public transit. Many MPOs subdivide each category according to the agency responsible for their construction, maintenance, or operation. Given this diversity of agencies involved in cost estimation, we were not surprised to find a wide variety of cost estimation methods and significant differences in their accuracy. Few of the case study MPOs required their member agencies to specify projects at a consistent level of detail across all three categories and only a few MPOs instructed member agencies in consistent cost estimation methodology. Nevertheless, most of them noted the lack of detail and inaccurate cost estimation methods across sub-categories (e.g., bus and light rail, major arterials in one jurisdiction vs. another)."

(b) Case Study Experience

"The ISTEA financial constraint requirements have motivated some of the case study MPOs to scrutinize the cost estimates of their member agencies. This scrutiny is more intense on the estimates by local jurisdictions for local road improvements. Most MPOs accepted their transit agency's estimates because they believed the FTA audit requirements placed sufficient controls on their project estimation procedures. Only one MPO monitored the cost estimation procedures for state highways employed by the state DOT, and as a result found significant inconsistencies and inaccuracies.

"The vast majority of problems stemmed from carelessness motivated simply because prior to the ISTEA there [were] no onerous consequences to inaccurate estimates. Furthermore, many of the MPO's prepared pre-ISTEA RTPs without cost estimates for local roads that were scheduled beyond the TIP horizon. As these projects were brought into the TIP, sponsoring agencies specified the project's details and estimated the project's component costs. Nevertheless, each agency (e.g., city public works department, transit district, county transportation agency, etc.) employed different methods.

"MPOs with local revenue sources (sales tax, assessment districts, etc.) had to specify projects in a consistent and detailed manner in order to submit the measure for a popular vote. These measures helped train local agencies in more rigorous cost specification and estimation procedures. MPOs almost always included the detailed expenditure plans from these local revenue measures in their TIP and RTP. MPOs without

such measures contended with wide variations in procedures and assumptions. Some case study MPOs, for example, found estimates for road projects from local jurisdictions excluded right-of-way acquisition cost.

"Some case study MPOs claim the underestimation of project cost is sometimes deliberate. Local jurisdictions low ball project costs in order to fund as many projects as possible given their allocation of available revenues. These local jurisdictions then hoped political pressure on the MPO would lead to additional funding in subsequent TIPs. Some case study MPOs adopted this practice themselves in order to force their state DOTs to allocate more funding for regional projects or increase pressure on reluctant developers to construct roads or dedicated right-of-way."

(c) Next Steps and Possible Assistance

"ISTEA requirements do not stipulate the level of detail for a project's specification. Nor does the law require an MPO to breakout a project's component costs or how these costs should be calculated. The case study MPOs, in turn, range from requiring member agencies to follow moderately consistent cost estimation procedures to accepting extremely vague and superficial estimates. The requirements placed on transit agencies receiving FTA funding may be too rigorous for local jurisdictions.

"Coherent cost estimation procedures are relatively easy to lay out. Furthermore, some of the case study MPOs suggested FHWA / FTA guidance would be helpful. More specifically, these MPOs suggested templates (in a spreadsheet program) and some training on the most likely sources of inaccurate cost estimation would help them verify estimates prepared by sponsoring agencies and even give them the means to play a more proactive role in project cost estimation."

(2) Operations and Maintenance vs. New Construction

(a) Description of the Difficulty

"The ISTEA administrative regulations direct MPOs to assert that their transportation system is being adequately operated and maintained for maintenance and operation (O&M) of the existing transportation system before funding new capacity. This directive, however, is less than clear cut. Furthermore, the ISTEA does not prohibit construction of new facilities/ systems when the MPO may not have sufficient future funding for the O&M of these new facilities. The difficulty in balancing new capital construction with existing and potential O&M requirements is further exacerbated by the relative dearth of ISTEA funding for on-going

operations. MPOs are faced with the choice of "use it or lose it" even if they are unable to maintain it or operate it."

(b) Case Study Experience

"None of the case study MPOs regard the ISTEA administrative directive as an outright prohibition on new construction without first demonstrating sufficient O&M funding. An MPO that was not one of our case studies stated it would have insufficient operating revenues to operate its planned, expanded system in the future at the same level of service it currently provides. It assumed, therefore, that its financially constrained RTP would force it to cut back service levels if no new source of funding were implemented.

"None of the case study RTPs or TIPs were this explicit. Instead, many assumed a minimal level of O&M, although none of the MPOs stated such assumptions in their RTP's or TIPs. Some RTPs and TIPs assumed the local jurisdictions would contribute more general funds than historically had been the case. Two case study MPOs stated the TIP's O&M expenditures would be funded from as yet unformed assessment districts or proceeds from future bond measures. Transit districts occasionally assumed increasing rate of farebox recovery even if historical trends did not justify such optimism."

(c) Next Steps and Possible Assistance

"Many MPOs were willing to estimate minimal O&M liabilities in order to preserve capital projects. Explicit administrative guidelines may clarify the intentions of FHWA / FTA, but this practice, in our opinion, does not stem from a MPO's confusion. All of the case study MPO's admitted they felt considerable political pressure to maintain momentum on their capital improvement programs at the risk of increasing their backlog of deferred maintenance."

"Some clarification of the ISTEA priorities for O&M versus new capital projects may help MPOs resist the political pressure to build new facilities they cannot maintain. Such clarification, however, will probably not constrain the widespread practice of minimizing O&M liabilities. If such practices are to be curtailed, FHWA/FTA technical support should promote
examples of good practice for estimating O&M costs and require MPOs to demonstrate why more optimistic cost assumptions are justified."

(3) Effects of New Technology on Cost Estimation

(a) Description of Difficulty

"A cursory evaluation of historical trends indicates new technology has had significant effects - both positive and negative - on construction costs and on-going O&M expenditures. Unfortunately, potential savings from new technologies are difficult to quantify and anecdotes abound of new technologies that not only failed to save money, but actually caused higher costs than the traditional technology. Nevertheless, improved pavement formulations, more efficient transit operating practices, and more durable transit equipment are demonstrating lower life-cycle costs than are currently being applied to many TIP and RTP cost estimates."

(b) Case Study Experience

"We expected the ISTEA financial constraints to create an incentive for MPOs to incorporate lower cost assumptions due to new technologies, but the vast majority of the case study TIP's and many of the case study RTPs ignored the potential savings. Most MPOs considered potential savings unlikely; a few indicated they assumed constant costs as a conservative hedge against historically volatile O&M costs. One MPO, for example, is facing [an] enormous, long-term maintenance expense because it used a reformulated concrete in the 1960's that reacted with its alkaline soil and has begun breaking up.

"Many of the case study MPOs indicated their reluctance to assume savings without a nod from their state DOTs or federal agencies. A few MPOs regarded potential applications of new technologies as politically problematic. Automated fare collection, for example, has a lower cost per mile than more labor intensive operations, but some case study MPOs face intense union opposition that will limit wide spread implementation. One RTP has cost estimates that assume more automated operations."

(c) Next Steps and Possible Assistance

"Some of the more commonly applied new technologies have sufficient historical trends to justify lower cost assumptions. This knowledge, however, appears to be somewhat unevenly disseminated. FHWA technical support could provide statistically validated estimates of potential cost savings. This type of technical support could also standardize cost estimation for traditional technologies."

e. Revenue Forecasting

"MPOs methods of projecting revenues ranged from highly sophisticated to extremely simplistic. The MPOs that used more sophisticated

techniques appeared more likely to generate more accurate results and they tended to exercise more influence over the planning process as a result."

(1) Level of MPO Involvement in Forecasting Revenues

(a) Description of Difficulty

"The ISTEA financial constraint requirements have put MPOs ability to forecast revenues under a microscope. The level of sophistication varied across a wide range from nearly complete ignorance of the ISTEA funding mechanisms to extremely comprehensive understanding and proactive debate with FHWA and FTA over the intricacies of a specific funding source's application. In general, MPO involvement in their RTP's and / or TIP's revenue projections may be classified into three groups:

1. MPO's that project their own share of federal and state funding and frequently challenge the federal regulations restricting use of dedicated funds for expenditures on facilities outside the prescribed use;

2. MPO's that use State projections but retain some measure of understanding and exercise some control over the state DOT's allocation process; and

3. MPOs that acquiesce in whatever federal and state fund projections their DOT provides and will often be bypassed by state planning officials who will consult directly with the MPO's member agencies."

(b) Case Study Experience

"Our case study MPOs fell into all three categories above. Most fit into the second category, but many of the smaller case study MPOs (and a few of the larger ones as well) deferred completely to state DOTs for their revenue projections. Although not always the case, the MPOs in the first group tended to be more sophisticated in their estimates of future federal and state funding. Only two case study MPOs, for example, examined the historical appropriation levels versus the authorization levels for ISTEA funds (e.g., STP, NHS, and CMAQ) and incorporated the historical discrepancies into their projections of future funding. The remainder of the case study MPOs assumed the full authorization level for their projections."

(c) Next Steps and Possible Assistance

"One [criterion] for an MPO's effective management of the TIP and / or

RTP process appears to be its level of understanding and sophistication in projecting revenues. The least sophisticated MPOs, therefore, would benefit from a technical support program designed to improve their understanding of federal (and state) revenue sources to the level of the more sophisticated MPOs.

"This program should include software that guides a user through the details of each funding source. The software would provide override options for specific assumptions, including each source's application, deviation from historical appropriation levels, likelihood and range of future appropriation levels, eligibility criteria, local matching requirements, and flexibility. With the likely changes to many of these variables during the reauthorization of ISTEA, such technical support / expert systems would accelerate an MPO's learning curve."

(2) Consideration of Additional Funding Sources

(a) Description of Difficulty

"The first round of RTPs and TIPs under the ISTEA financial constraints has forced many MPOs to abandon their usual wish list of projects. The sobering experience, coupled with the recent cutbacks in federal funding appropriations, has helped MPOs convince policy makers and their citizen advisory committees of a need for new local revenue sources. The next round of RTP and TIP updates should move what appears to be a large group of MPOs closer to implementing measures for new local funding."

(b) Case Study Experience

"Most of the case study MPOs have been considering new local funding sources prior to their first financially constrained RTP and / or TIP. Some of the larger case study MPOs created two, long-range project lists: the financially constrained plan with a limited number of projects and a 'needs-based' list that assumes the passage of new local funding measures (e.g., gas tax increase, dedicated sales tax, regional development impact fees, etc.). Some of the RTPs attached detailed descriptions on new funding sources to the plan's financial element with estimates of each source's potential to fund the second tier of projects.

"A few of the case study RTPs assumed new sources of local funding as part of its financially constrained project list. In this case, the MPO assumed maintenance costs for local roads would be funded by local jurisdiction (i.e., general fund outlays). Another MPO assumed the transit agency would have its long range operational needs covered by an increased proportion of city general funds. These assumptions are

relatively conservative compared to the pre-ISTEA pattern of assuming new and often unspecified funding from local, state, and federal sources. Prior to the ISTEA, for example, one large case study MPO would include an assumption in its financial element claiming RTP's financial needs would be met by the MPO obtaining its rightful (and considerable larger) share of state funding. Its first financially constrained RTP dropped this assumption and listed a host of local funding measures it intended to push for."

(c) Next Steps and Possible Assistance

"Many of the case study MPO's dedicated considerable effort to identifying new revenue sources. These efforts, when compared side-by-side, appear quite similar. FHWA/FTA technical support could provide a reference manual describing the various local sources of transportation revenue, including the advantages, disadvantages, and examples of their successful implementation, and most likely application. Nevertheless, the case studies clearly indicate each MPO faces extremely different political conditions and public perceptions that dictate which types of local funding (if any) would be feasible."

f. Revenue/Cost Reconciliation

"In this third area of financial planning, MPOs encountered the most severe difficulties in meeting the letter and spirit of ISTEA financial constraint requirements As discussed in the Process section of this executive summary, none of the case study MPOs initiated their RTP development with a projection of available revenues prior to conducting a needs assessment. Thus, all of the RTPs underwent some process of revenue/cost reconciliation. While the individual case studies document a wide variety of approaches, this summary of generic difficulties presents a single problem associated with most of the case study RTPs and TIPs."

(1) Project Delineation vs. Revenue Exaggeration

(a) Description of Difficulty

"The ultimate reconciliation of insufficient revenues and the stated needs involves at least one (and usually more) of the following tactics:
Outright dollar-for-dollar project deletion or truncation of project scope;
Some re-estimation of project costs based on more optimistic assumptions;
Obtaining additional revenues from new or existing sources; and / or
Re-examining and exaggerating the likely revenues from existing funding sources.

"These practices are not new to financial planning, but the ISTEA financial constraint requirements have probably forced many MPOs to use a new mix of these tactics."

(b) Case Study Experience

"As a group, our case study MPOs practiced all four tactics described above. Some were quite conservative, deleting projects to match available revenues. One MPO was prepared to acknowledge a significant shortfall, but the state DOT withdrew its proposed construction of new highway segments (but retained expenditures for right-of-way acquisition). Others literally rubber-stamped the projects submitted by their member agencies and were either fortunate that total costs did not exceed the revenues projected by their state DOT or made some of the assumptions described in the Revenue Projection section and Cost Estimation section of this executive summary.

"Overall, an MPO's methods of cost/revenue reconciliation were not always obvious from a close reading of their RTP and / or TIP. Furthermore, the interviews did not always reveal their reconciliation tactics completely. In one case study of a large, urban RTP, for example, a very careful re-reading of the long-range plan's socioeconomic forecast conflicted with our interview notes. The inconsistency pointed to overly optimistic projections for farebox recovery levels. Namely, the exodus of concentrated financial service firms from downtown to dispersed suburban locations would undermine the MPO's long-term transit ridership assumptions. Without this increasing ridership, the RTP's forecast of increased operating efficiencies (i.e., cost per passenger mile) were overly optimistic. Furthermore, the capital expansion of light rail would be difficult to justify without the requisite employment density in the downtown area. Historical data going back twenty years justified the MPO's assumptions. More recent trend analysis of business migration during the last recession, however, exposed the difficulty the MPO faced with long standing transit investment plans."

(c) Next Steps and Possible Assistance

"Cost/revenue reconciliation difficulties are either the result of technical difficulties described in the two previous sections (i.e., Cost Estimation or Revenue Projections) or a political difficulty resolved by deliberate efforts to paper over funding gaps. The latter difficulty will remain a part of any public sector financial planning exercise, no matter what assistance is provided."

8. Research on Usefulness of Financial Plans to MPOs
(EBA, Inc., 1995)

The objective of this report was to obtain information from officials of MPOs about their views of the usefulness of ISTEA's financial planning requirements. A number of findings were common to the MPOs which were surveyed. They expressed support of the utility of financial plans. Financial planning:

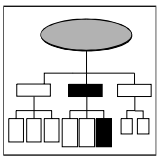
- Interjected realism into the discussion of projects and revenues
- Promoted regional cooperation
- Encouraged a level playing field for jurisdictions in a metropolitan area
- Encouraged citizen participation

MPO officials were concerned because they felt:

- ISTEA lacked sufficient flexibility in its financial planning requirements
- They lacked sufficient flexibility of funds
- Projecting local funds was problematic
- Estimating costs was difficult
- Balancing project costs with available resources was challenging

The report provided the following recommendations from respondents to improve the usefulness of financial plans for MPOs:

- Improve the Federal budget process to provide revenue information to State and local governments in a time frame that allows programs to be developed before Federal fiscal year deadlines
- Provide more flexibility in the constrained plan requirement
- Allow projects for which no funding has been identified to be included in the transportation plan
- Provide guidance for the types of activities to be included in projected operations and maintenance costs
- Simplify requirements, reduce paperwork, and eliminate ambiguities



C. CASE STUDIES

1. Champaign-Urbana Case Study
(Cambridge Systematics, Inc., 1995)

a. Long Range Transportation Plan

(1) Introduction

(a) Presentation of Financial Information

"The Long Range Regional Transportation Plan (RTP) consists of 14 chapters, including an Executive Summary, and four appendices. All of the Plan's financial information is found in Chapter 12, Financial Resources and Information."

(b) Population and Employment

"The Champaign-Urbana Urbanized Area is located in the center of Champaign County in east-central Illinois and includes the City of Champaign, the City of Urbana, the Village of Savoy and the University of Illinois campus. It serves as a retail and transportation center for a region which is primarily agricultural. With a population of 102,520 (1990 U.S. Census), it comprises 59% of the total county population. According to the Bureau of Economic Analysis, population is projected to increase by 82% between 1990 and 2020. Employment in the urbanized area is concentrated in manufacturing (food, paper, plastic), retail, and services. Employment is expected to exhibit moderate growth up to year 2020."

(c) Existing Transportation System

"The current highway system adequately serves the area. It consists of three highway systems (I-57, I-74, and I-72), two U.S. routes (45 and 150) and two state routes (Route 10 and 130). The area is also served by daily bus service (Champaign-Urbana Mass Transit District), four railroad lines (Norfolk Southern, Conrail, Illinois Central, and Amtrak), intercity bus service and two airports (Willard and Frasca Airports).

"As a growing community, the Champaign-Urbana area has a transportation system which needs to be maintained but also requires expansion to accommodate new growth. New road construction (i.e. capital projects) constitute a significant portion of total funded projects. As an ozone attainment area, the urbanized area needs to be concerned about air quality

issues but does not need to conduct air quality analysis of proposed transportation projects."

(d) Champaign-Urbana Urbanized Area Transportation Study

"In 1964, the Champaign-Urbana Urbanized Area Transportation Study (CUUATS) was designated as the metropolitan planning organization (MPO) to provide transportation planning for the area. CUUATS staff at the Champaign County Regional Planning Commission are responsible for producing the Long Range Plan. The most recent Long Range Plan (Champaign-Urbana in 2020: A Transportation and Mobility Plan for the Champaign-Urbana-Savory-University of Illinois Urbanized Area) is the first to include financial constraints.

"The MPO's proposed RTP must be approved by the CUUATS Policy Committee. This Policy Committee consists of local or elected officials from the three municipalities, Champaign County, Regional Planning Commission, Illinois Department of Transportation (IDOT), the Champaign-Urbana Mass Transit District Board (C-U MTD) and the University of Illinois. In addition, the MPO works closely with Technical Committee, which consists of similar representation from each agency or municipality, plus representation from Willard Airport and the Champaign County Regional Planning Commission."

(2) Process

(a) Basic Steps

"As a policy document, the Long Range Plan defines a 'vision' for transportation and mobility in the Champaign-Urbana Urbanized Area up to year 2020. The Long Range Plan covers highways, bicycles, pedestrians, transit, land use, rail, air travel, and freight movement. CUUATS staff, the Policy and the Technical Committee provided the principal direction of the document. In addition, the following five task forces were involved: Public Involvement, Socioeconomic, Alternative Generation/Plan Evaluation, Bicycle/Pedestrian, and Financial Resources. The process, in very general terms followed the following steps.

1. CUUATS begins with the current long range plan on the 1986 Long Range Plan.

2. CUUATS updates the population and employment projections and applies these to determine future travel demand.

3. The municipalities, the university, and the transit agency provide their capital improvement programs to create the initial inventory of projects and cost estimates.

4. The task forces and staff conducted public meetings to generate additional ideas in all steps of the process, especially for the development of the bicycle element.

5. The Financial Resources Task Force developed a financial section that provided rough cost and revenue estimates.

6. The Policy Committee reconciles cost estimates and [sic] with the projected revenues and approved the plan in December of 1994.

"The RTP covers all road and bicycle projects, in the urbanized area. Road projects range from resurfacing, bridge replacement and traffic signalization to land acquisition, road widening, and construction of bike paths. Transit projects include acquisition of new buses and operating costs. Local projects rely on local funds from city, village, or the University."

(b) Changes Due to ISTEA

"The Long Range Plan has become less of a needs-based plan. Financial constraints have brought out the inconsistencies and created a more realistic and workable document. On top of federal- and state-funded projects, the Plan now includes local projects such as maintenance or minor improvement tasks. A more inclusive listing has been helpful to municipalities, MPO and IDOT officials, who can better understand where money is being spent locally."

(c) Processes' Advantages and Disadvantages

"The municipalities, the University of Illinois, and the MTD develop their project lists in consultation with the CUUATS Policy Committee. This process is a bottom-up approach to short-term planning in that it gives individual jurisdictions' authority to develop their own list of projects (see Step 3, above). Nevertheless, the MPO has an opportunity to pare down the list of projects (in Step 4) to confirm with the ISTEA financial constraints requirement. The MPO assembles and approves these projects based on regional priorities and resolution of conflicting goals between jurisdiction."

(3) Cost Estimation

(a) Methodologies and Tools

"CUUATS uses IDOT's assistance to examine historic and current construction costs and then apply them to future projects of roughly similar scale. Long Range Plan project costs amount to $231 million. This figure includes $118.7 million for new projects of which $27.3 million is in the 1995-1997 TIP and $85 million for maintenance. For many projects beyond the TIP's horizon, project cost estimates are extremely rough because of the uncertainty in exact alignments of highway projects and highly unpredictable scope of services for transit projects. Because of the inherent uncertainties of projecting costs twenty years in the future, staff are not confident with Long Range Plan's estimates, but do not have access to a [sic] more effective procedures."

(b) Changes in MPO's Involvement Due to ISTEA

"Although the MPO involvement in the cost estimation process has not changed, financial considerations have reduced the number of projects and scope of services. ISTEA's financial constraint requirement have [sic] led to the addition of a Financial Resources Task Force that has significant control over the final projects included in the Long Range Plan. As a result of this task force, the MPO's technical support must now include considerably more financial analysis."

(4) Revenue Projections

"The Illinois Department of Transportation (IDOT) is responsible for the projecting and allocating federal and state revenues. It has generally been accurate is [sic] its projections and its allocation procedures are generally been [sic] regarded as fair.

"Funding levels (adjusted for inflation) have not changed significantly in the past and IDOT assumes that overall revenue will remain relatively constant in the future. IDOT, therefore, extrapolates annual revenues based on historical trends out to year 2020. For the 1995-2020 period, available funding amounts to $231 million, in 1994 dollars."

(a) Federal Funding Sources

"Federal revenue primarily comes from motor fuel tax and accounts for 50 percent to 80 percent of the total cost for transportation project [sic]. Although the federal funding categories have changed, CUUATS staff assume overall federal funding level [sic] will remain relatively constant.

CUUATS and IDOT are aware that ISTEA has allowed for greater financial flexibility. The region's communities, however, are not taking advantage of flexible funds in part because funds in traditional categories are sufficient to fund all the necessary projects. For example, the MPO is aware that it may reallocate traditional highway funds to cover transit or bicycle projects."

(b) State Funding Sources

"IDOT allocates state revenue according to population and road millage and historical authorization levels. State funds are derived mostly from motor fuel tax, bond issues, general funds and licenses. In the Long Range Plan, state matches for roadway projects provide $53 million (23 percent). The transit district (MTD) expects to receive approximately $36 million. The MPO officials feel confident that current levels of state funding will continue over the long term."

(c) Regional, Local, and Private Funding Sources

"Local transportation sources include motor fuel tax, vehicle registration fees, sales tax, property taxes, bonds, and licenses. The Long Range Plan discusses new or innovative financing only as a possible means for providing additional transit revenue. In the Transit Element, the plan suggests that new sources need to be found to 'enhance' and 'improve' the existing bus service. Sources discussed include: municipal license plate stickers, parking tax, special service districts, and a local sales tax. Local agencies; however, have not considered these items seriously; they have not taken any steps to implement these ideas and are not expected to in the near future. For its part, CUUATS is not actively seeking new or innovative funding sources because of the lack of local support and their confidence of reliable and sufficient existing sources."

(d) Cost/Revenue Reconciliation

"ISTEA financial constraints have reduced the scope of the Long Range Plan, forcing local officials to consider a more realistic short and long-term future for the transportation system. During the initial steps of the Long Range Plan's development, MPO staff have asked sponsoring agencies to take a relatively conservative approach toward cost estimation and revenue assumptions. Thus, a project's initial cost estimates tend to be on the upper end of the range of uncertainty, and revenue projections tend to be on the lower end. The final reconciliation, therefore, does not require major adjustments. The MPO staff, in consultation with the Financial Resources Committee, resolve long-term discrepancies by pushing projects out beyond the limits of the plan, and identifying potential

funding sources."

b. Transportation Improvement Program

(1) Process

(a) Basic Steps

"Developing the TIP is a joint effort among the MPO, sponsoring agencies, IDOT, and the public. Projects included are those to be implemented by the municipalities, the University of Illinois, the county, the state and the Mass Transit District. The process involves the following steps:

1. With the assistance of the MPO, sponsoring agencies develop a preliminary list of projects based on local comprehensive plans and the CUUATS Long Range Plan. At the same time, the Champaign-Urbana Metropolitan Transit District (MTD) prepares a capital and operating budget for the coming three years.

2. CUUATS staff assembles the list and submits it to IDOT, which then prepares cost estimates for these projects.

3. IDOT uses FHWA and FTA formulas to determine federal funding allocations for the Champaign-Urbana Urbanized Area and submits its costs and revenue estimates to CUUATS.

4. CUUATS then totaled the projects and compares their financial needs to the available funding. Some projects must compete for discretionary funds allocated to the MPO, while others are determined at the state level.

5. The CUUATS Policy Committee (with representation from each sponsoring agency) reviews the final list and approves both the draft and the final TIP.

"The TIP covers state and regional road projects, transit projects and local projects. Road projects range from resurfacing, bridge replacement and traffic signalization to land acquisition, road widening, and construction of bike paths. Transit projects include acquisition of new buses and operating costs. Local projects rely on local funds from city, village, or the University."

(b) Changes due to ISTEA

"The TIP has become less of a needs-based plan. Financial constraints have brought out the inconsistencies and created a more realistic and workable document. Limited by uncertainties in future authorization levels, the TIP has been reduced from a five-year to a three-year document, with cost estimates broken down by year.

"On top of federal and state-funded projects, the TIP now includes local projects such as maintenance or minor improvement tasks. A more inclusive listing has been helpful to municipalities, MPO and IDOT officials, who can better understand where money is being spent locally."

(c) Processes' Advantages and Disadvantages

"The municipalities, the University of Illinois, and the MTD develop the project lists in consultation with CUUATS Policy Committee. This process is a bottom-up approach to short-term planning in that it allows individual jurisdictions to develop their own list of projects (see Step 3, above). Nevertheless, CUUATS applies its long-term regional policies to pare down the list of projects (in step 4) to conform with the ISTEA financial constraints requirement. CUUATS assembles and approves these projects based on regional priorities."

(2) Cost Estimation

(a) Methodologies and Tools

"The 1995-1997 TIP includes $27.3 million for new projects. CUUATS submits this list of projects to the Paris (IL) Branch Office of IDOT, which is responsible for estimating project costs. The IDOT official works with the county engineering department to determine rough estimates based on preliminary engineering, right-of-way acquisitions, and local costs of labor and materials. Given the experience of the IDOT officials developing the estimates, MPO staff are confident that TIP estimates are accurate."

(b) Changes in MPO's Involvement Due to ISTEA

"Although the MPO involvement in the TIP cost estimation process has not changed, financial considerations have reduced the number of projects and scope of services funded in the TIP.

"ISTEA's financial constraint requirement [has] led to the addition of a Financial Resources Task Force that has significant control over the final projects included in the Long-Range Plan. As a result of this task force, the MPO's technical support must now include considerable more

financial analysis."

(3) Revenue Projections

"The Illinois Department of Transportation (IDOT) is responsible for the projecting and allocating federal and state revenues. It has generally been accurate is [sic] its projections and its allocation procedures are generally been [sic] regarded as fair."

(a) Federal Funding Sources

"In the current TIP, available federal funds, derived mostly from motor fuel tax revenue, amount to $16.0 million. IDOT allocates federal (and state) funds to the CUUATS area for the three year TIP using FTA, FHWA and its own formulas. As an air quality attainment area which is heavily auto-oriented, road construction and lane widening in the CUUATS area comprise a majority of total allocations. For highway projects, important federal sources include Interstate Maintenance ($4.5 million), Surface Transportation Program (Local and State, $4.26 million) and National Highway System ($824,000) funds. An ISTEA Demonstration program also provides $5.6 million toward a U.S. Route project which requires road widening and intersection reconstruction.

"Enhancement, ISTEA Demonstration, Interstate Maintenance and some other funding categories are allocated according to a statewide ranking system based on need and preparedness. IDOT allocates other federal funds to urbanized areas based on demographic and economic factors. IDOT, for example, provides to CUUATS an estimated annual apportionment of Surface Transportation Program-Local (STP-Local) to be used at the MPO's discretion. This figure is based on existing authorization and appropriation levels. For the 1995-1997 TIP, IDOT determined that CUUATS will have available $680,300 per year.

"Federal funding for 'alternative' transportation projects comprise [sic] a much smaller portion of the budget. Local enhancement funds amounting to $749,100 are available to build a hike/bike trail and two bike paths. For the Mass Transit District, FTA Section 3 and 9 funds amount to $10.6 million. CMAQ funds are not available to the area."

(b) State Funding Sources

"IDOT allocates state revenue according to population and road millage and historical authorization levels. State funds are derived mostly from motor fuel tax, bond issues, general funds and licenses. In the current TIP, state matches for roadway projects provide $6.2 million. The transit

district (MTD) receives $15.5 million in state matches."

(c) Regional, Local, Private Funding Sources

"For federally-funded projects, matching revenues for local roadways are derived mostly from motor fuel tax, sales tax, development exactions, registration fees and licenses. The University provides matching funds through educational revenue. The Champaign-Urbana MTD provides its matching funds from farebox revenue and a share of the region's property tax. For entirely locally-funded projects, sponsoring agencies use motor fuel tax, capital improvement funds, sewer benefit tax and community development funds. Local agencies have not been [sic] considered additional or new items seriously. For its part, CUUATS is not actively seeking new or innovative funding sources because of the lack of local support and their confidence that existing sources will be sufficient."

(4) Cost/Revenue Reconciliation

"ISTEA financial constraints have reduced the scope of the TIP, forcing local officials to consider a more realistic short and long-term future for the transportation system. During the initial steps of the TIP's development, MPO staff have asked sponsoring agencies to take a relatively conservative approach toward cost and revenue estimation. Thus, a project's initial cost estimates tend to be on the upper end of the range of uncertainty, and revenue projections tend to be on the lower end. The final reconciliation, therefore, does not require major adjustments.

"When a discrepancy arises, the CUUATS staff, in consultation with the Financial Resources Committee, either reduce a project's costs, reduce its scope, or delete projects entirely, rather than increase revenues or inflate revenue projections. If deleting projects, CUUATS staff will push the project to later, un-funded year."

2. Chicago FTA/FHWA Enhanced Planning Review
(Lyons, 1996j)

a. Comments on Regional Transportation Plan Relating to Financial Constraint

(1) Plan Goals

"The TSD Plan update states that the goals and objectives are intended to serve as guidelines against which projects can be reviewed to determine whether they meet regional and local needs.

"6. Goal: Minimize the cost of creating and maintaining the transportation system and ensure that transportation plans are financially attainable.

- Use capital and operating funds cost-effectively.
- Actively pursue funding to maintain the transportation infrastructure.
- Consider operating and maintenance costs during the investment decision-making process.
- Maximize the region's share of federal and state transportation funds.
- Develop alternative transportation financing mechanisms.
- Develop public-private partnerships to provide/operate transport services.
- Develop and maintain an environment which encourages private operators to provide unsubsidized transportation services to the maximum extent possible."

(2) Financial Approach

"The final chapter in the 2010 TSD Plan update discusses the financial approach. The section was updated in 1994 with four noteworthy changes which included increased needs for major facility expansion, more optimistic projections for anticipated transportation funds, a discussion of additional potential revenue sources, and a discussion of the inclusion of operating and maintenance costs in the plan. The update states that CATS uses a financial approach which combines constraint--i.e., the TSD Plan projects should be reasonably affordable--and indicates the travel needs that should be met to determine what level of funding should be sought. CATS divides the capital costs into two categories, maintaining the existing structure and adding capacity (including ROW preservation)."

(3) Resource Constraints and Project Prioritization

"Projections for rapid growth pose a major challenge for CATS and the transportation planning community in the Chicago metropolitan area, particularly in light of financial resource constraints. The current TSD Plan update for 2010 which was adopted in March of 1994 projected financial needs of approximately $25.9 billion for highway and transit system components through 2010, but only $19.2 billion in available resources to address those needs. These resources are not sufficient to cover the $20.5 billion identified solely for capital maintenance which includes major reconstruction of existing systems, aside from the $5.4 billion identified for major facility expansions, other expansions, and right-of-way preservation. These funding deficiencies were based on prior forecasts of population and employment which were significantly lower than the new forecasts described earlier.

"As part of the 2020 RTP development process, CATS has proposed a two-step project prioritization screening process. The first step is to develop the definition of 'regionally significant' projects regardless of funding source. The second step in the process will be development of project prioritization criteria by the CATS staff which will be applied to the projects resulting from step one of the process. These criteria are currently under development and will not be completed in advance of the completion of the goals and objectives of the 2020 RTP. According to staff, all projects submitted for inclusion in the 2020 RTP will be subject to the screening process."

"Participants in the Chicago metropolitan transportation planning process have traditionally used financial targeting as a basis for the development of financially constrained programs. Projected available funds over a five-year period are used to generate 'marks' for transit and highway components of the program. Initial transit marks are generated by RTA based on a compromise between projected U.S. House and U.S. Senate transportation funding levels for FTA funding programs. Highway marks are generated by IDOT for funding from federal and statewide sources, while CATS generates estimates for CMAQ funding and for attributable STP funds to the Council of Mayors. Both highway and transit marks are then approved by the WPC. Local jurisdictions and implementing agencies are provided with the marks and then develop a financially constrained program by allocating the available funds to a pool of proposed projects. The proposals are then aggregated and reviewed for financial constraint.

"As part of the development of the 2020 RTP, the RTP Committee established the Financial Resources Working Group with primary assignments to analyze maintenance and operating costs for the multi-modal system, assess the availability of current and future resources, and assess the effect on the economic viability of the region. According to CATS staff, a detailed and exhaustive analysis of all system preservation requirements will be undertaken as part of the 2020 RTP. Toward those ends, the RTA is working in conjunction with other agencies to develop two models for use in their financial analyses--a capital assets model incorporating life cycle costs and an operating and maintenance cost model.

"According to the 2010 TSD Plan update, currently available resources for transportation programming are not sufficient to cover existing infrastructure rehabilitation and maintenance requirements as discussed earlier. The 2010 TSD Plan update identified several potential sources of additional revenue that could generate up to $38.3 billion in transportation funding, but the TSD Plan did not identify or endorse specific individual funding sources. During discussions regarding the development of the

2020 RTP now under way, members of the Financial Resources Working Group reported that the commitment to build the political consensus necessary to pursue any of these potential revenue sources is not well developed, which reflects the realities of the current political climate and public resistance to new or higher forms of taxes or fees.

“Future transportation funding needs will have to be met through increased resources. At the same time, many participants in the regional planning process seem uninterested in considering changes to current funding legislation or agreements that might provide more flexibility in funding transportation needs on a system-wide basis. A number of participants pointed to the history of the State of Illinois' response to funding shortfalls and the Chicago metropolitan area's history as a recipient of earmarked or demonstration project federal funding for large projects, such as new transit starts or rehabilitation of the Dan Ryan Expressway, as a major component in meeting future resource requirements. However, the impact of significant growth projections through 2020 on a regional transportation system which is already underfunded suggests that dependence on special state or federal aid alone may not be sufficient.”

b. Observations on Financial Planning and Financial Constraint

(1) Financial Planning

”The tradition of sound financial planning on the part of local implementors adds rigor and accountability to the Plan and the TIP. The use of ‘marks’ based on multi-year resource projections is prudent practice which enhances the region's and implementor's ability to clearly assess outstanding resource requirements which cannot be met through existing resources and to develop realistic long-term options.”

(2) Enhancing Revenues

“To address funding shortfalls for existing systems operation, maintenance, and system recapitalization, participants and other implementors in the metropolitan transportation planning process should explore options to enhance existing resources to support the 2020 RTP. Strategies considered should include potential new sources of funding as well as resource enhancements realized through system efficiency improvements. A sound financial strategy with clear options for matching costs, revenues, and system performance as part of the 2020 RTP will support the consensus needed to address the significant growth in transportation needs being identified in the 2020 RTP development process.”

(3) Planning Challenges

"The EPR of the Chicago area metropolitan transportation planning process reveals that progress is being made in meeting a number of the challenges set forth in ISTEA. CATS' committee, subcommittee, and task force structure have expanded opportunities for participation of various stakeholders throughout the planning process. Other noteworthy efforts include the development of competitive CMAQ project prioritization criteria, financially constrained planning through the use of financial targets, enhanced public outreach, efforts to increase public awareness of air quality concerns, and a greater focus on intermodal and non-motorized transportation issues.

"Conversely, the region still faces a number of transportation planning challenges. Primary among these challenges is ensuring that existing funding agreements and local project prioritization processes fit within a regional decision-making context. The 2020 Regional Transportation Plan can play a major role in building regional consensus, developing a strategic direction to guide investments and strategies, and enhancing financial resources needed to address the impact of projected growth on the regional transportation system. Enhanced opportunities for public input at all stages of the planning process, completion of model enhancements, development of a CMS, and the use of the MIS process are key factors in the RTP development process. Each of these planning tools could support enhanced decision making, regional priority setting, and regional consensus for new funding opportunities to address regional challenges."

3. Cleveland FTA/FHWA Enhanced Planning Review

(Lyons, 1996a)

a. Organization and Management of the Planning Process

(1) Institutional Relationships

"Funding sources are as diverse as the number of officials with responsibility for making transportation investment decisions. Most Federal transportation funds pass through ODOT. State law mandates how other funds, including state gas tax and vehicle registration funds, are distributed. Counties, and some local governments, directly receive funds for transportation investments from gasoline taxes and vehicle registration fees. Some transit authorities receive funding directly from county sales taxes."

(2) Observations: **Establishment of Effective Partnerships**

"NOACA provides a forum for addressing regional transportation and environmental issues. This is enhanced by the involvement of other organizations and individuals through advisory committees, such as CPAC, and special committees. These cooperative relationships could support further improvements to the regional transportation planning process, such as the development of a new Plan in 1997 and identification of funding mechanisms for needed transportation investments."

b. Development of the Plan, Transportation Improvement Program, and Overall Work Program

(1) Regional Transportation Plan

"The Mobility Management policies are divided into three areas: maintaining the existing system, improving the efficiency of the system and reducing peak demand of the existing system. The Plan identifies $4.7 billion to be available from 1993 through 2010. A major assumption is that future funding levels for all sources will be consistent with those assumed for the 1994 TIP.

"The Plan reports difficulties in determining exactly the amount of funding which will be available for new highway and transit capacity, as well as the relatively unspecified cost estimates associated with projects in the needs study stages. New projects are assumed to attract new discretionary funding."

(2) Transportation Improvement Program

"The current TIP for the Greater Cleveland Metropolitan Area includes highway, bikeway and transit projects totaling more than $1 billion for State Fiscal Years (SFY) 1995-1998. The TIP document has two parts. The first includes four years of projects and constitutes the Financially Constrained TIP.

"The second part provides a list of projects that will begin after the fourth year of the TIP, but which require funding. This is the Information Only TIP. NOACA's Transportation Improvement Program Preparation Policy and Manual (TIP Manual), developed in 1993, describes the polices that guide the TIP development process. The TIP Manual describes the various sources of federal funding available, the types of projects eligible for funding and identifies the entity responsible for project selection. The TIP Manual notes that, while ISTEA makes provisions for considerable

flexibility in funding projects among categories, projects will first be funded from the most logical funding category.

“NOACA's three-step TIP development process screens and evaluates ‘attributable’ funded projects. These projects are funded using Congestion Management and Air Quality (CMAQ), sub-allocated Surface Transportation Program (STP), and sub-allocated minimum allocation funds, and make up 11% of funds from all sources identified for transportation investment in the 1995-1998 TIP. The State provides NOACA with an annual forecast of attributable funds. Project readiness (ready to sell) has, according to MPO staff, been a critical element in selecting a project for inclusion in the Financially Constrained TIP.

“NOACA, ODOT and other participants in the regional transportation planning process are working to make this a less important element of the project selection process. ODOT and transit operators perform their own analysis and selection of projects using ‘non-attributable’ funds. Non-attributable funds are Federal funds controlled by the State and transit operators. Non-attributable funded projects are submitted to NOACA for incorporation into the TIP. Other sources of funds, including gasoline tax and vehicle registration fees and sales taxes are controlled and programmed by the State, Cities and Counties, and transit operators.

“Regional review of projects using non-attributable federal funds or funds from other sources has not significantly changed decisions made by the agencies and authorities proposing these improvements. ODOT and transit operators, particularly the GCRTA, have historically proposed projects using non-attributable funds with little input from the regional transportation planning process. According to staff this is changing. ODOT has made a commitment to moving toward a regional focus when making funding decisions. This effort has been endorsed by ODOT's central office and is to be carried out by ODOT district offices. Implementation of the GCRTA's plans for major expansion projects (see Section VI) will need to be considered in a regional context which may require the transit operator to be a more proactive participant in the regional transportation decision making process.

“NOACA's TIP development process begins with screening new projects to determine eligibility. The next step is evaluation of proposed projects to determine that the proposed projects meet ISTEA requirements, and are consistent with the Plan and with Board Planning Principles. Screening and evaluation are done by NOACA staff and only new projects are screened and evaluated when a new TIP is being developed. Projects that were included on previous TIPs are assumed to meet eligibility requirements. Project evaluation information is then processed through a

TAC subcommittee, the TAC, and the Board. The final step in this process is Program Evaluation, where information from the previous steps is used to determine which projects will be included in the Fiscally Constrained TIP, to maximize use of all 'attributable' federal funds, and which will be included in the Information Only part of the TIP to enable a project to be developed with the intent to use federal funds."

(3) Observations: Clarity in the TIP Document

"The current TIP document includes two parts: a Financially Constrained TIP covering a four-year period and an Information Only TIP. This can lead to confusion about which projects have been formally reviewed and adopted through the regional transportation planning process and which require more study and formal action before receiving regional approval. This distinction should be clarified in future TIP documents."

c. FHWA and FTA Administrators' Focal Points

(1) Financial Planning and Financial Constraints

"Funding estimates and financial constraint analysis are done by each agency that has control over transportation funds. NOACA annually receives estimates of available attributable funds (described in Section IV. B.) from the State at the start of the TIP development process. The regional transportation planning process does not receive information about non-attributable funds until the State and transit operators submit their list of projects for inclusion in the TIP.

"Agencies with control over transportation funds submit a financially constrained list of projects for inclusion in the Financially Constrained TIP and a list of unfunded projects for inclusion in the Information Only TIP. Financial constraint of the TIP is achieved by compiling the lists of funded projects into the Metropolitan Financially Constrained TIP.

"The TIP is financially constrained because these separate components are constrained. Unfunded projects are listed on an Information Only TIP, which is included in the larger TIP document. Financial constraint of attributable funds is achieved in the TIP development process described in section IV. B.

"This process assesses the availability of funds and project funding requirements over the four-year period covered by the TIP. Funds not committed in one year are rolled over into the next year. Projects, or phases of projects, which require funding beyond forecasted limits in a given year are funded in the next year.

"According to NOACA staff, a critical concern in this process has been that sufficient attributable funds are available to a phase of or the entire project, and the sponsor is ready to begin work. This process, identifying what is 'ready to sell,' has also been a driving force for selecting projects at the State and transit operator levels. Efforts are being made to make this a less important factor in identifying and selecting projects. The long-term funding forecasts developed as part of the Plan update process are based on the assumption that funding from all sources will continue at historic levels.

"Federal funds are forecasted at authorized levels. The region has not done any analysis or developed any contingent financial planning to address possible changes in funding. The Plan presents a financially constrained list of programmed projects and a list of proposed projects that require further study before costs and sources of funds are identified. NOACA staff noted that many of these proposals are in the study stage and that sufficient information has not been developed to identify costs and potential funding sources. State and local sources were used to forecast revenues and costs used in the development of the Draft Plan update."

(2) Observations

(a) Coordination of Planning Processes

"The regional transportation planning process would be enhanced by having the MPO serve more effectively as a forum for consideration and coordination of all regionally significant transportation projects, regardless of funding source. Projects sponsored by the State, transit operators, or local governments using non-attributable funds, should be analyzed and evaluated within the regional transportation planning process on a more equitable basis with projects developed by NOACA from attributable funds. This would support more regionally effective allocation of scarce resources."

(b) Improving Fiscal Constraint Analysis Process

"Current financial planning has a project-oriented, short-range focus and is directed toward what is 'ready to sell' now. The region's efforts to change this orientation are encouraged, and should result in regional priorities and assessment of financial needs setting overall direction. Also, continued improvement in coordination by ODOT and NOACA would strengthen regional financial planning capability."

d. Integration of Strategic Transportation Planning

(1) Financial Analysis

"GCRTA has developed a financial analysis which shows that the Maximum system can be developed by 2016. The analysis assumes that increased service will result in increased ridership and that some sources of funds--such as fares, sales, and use taxes and State assistance--will increase. The GCRTA also assumes the current federal operating assistance formula will continue and that operating assistance will remain at the current authorized level. The assumptions also include a capital improvement funding split of 20% from GCRTA and 80% from other sources."

(2) Observations: GCRTA's Optimistic Funding Assumptions

"The optimistic funding assumptions included in the Transit 2010 Plan are not reflected in NOACA's Plan. The transit system envisioned in Transit 2010 is ambitious and will require a great deal of coordination between the GCRTA and NOACA and the GCRTA and State, County and local governments. Clarifying what funds are realistically available and how far those funds can go to build the envisioned system is a first step in helping policy-makers and the public understand what is presently possible and what may be possible only with additional funding sources."

e. Meetings with Local Elected Officials

"The team met with NOACA's Executive Committee and other Board Members prior to a regularly scheduled Board meeting. Several participants identified NOACA as a good place for consensus building and for identifying regional needs and priorities. ODOT was identified as having different views about where investment should go from the views developed through the regional transportation planning process. Local participants in this meeting agreed that the regional decision to limit urban sprawl was a good first step, but that it is unclear how it will be accomplished. A major problem facing the region is that increasing demands for services cannot easily be met because, given projections of no net population growth, funding is likely to remain stable. This helps to create an inherent conflict among local and county governments, as development in one part of the region occurs at the expense of another part of the region."

f. Conclusion

"Conversely, the federal team identified specific areas to be addressed in order to continuously improve the transportation planning process in the Cleveland metropolitan area. These include the following areas:

"The Plan and the TIP should clearly identify projects that have been approved for implementation and those that require further study or are not fully funded."

4. Dallas FTA/FHWA Enhanced Planning Review
(Lyons, 1996k)

a. Comments on Regional Transportation Plan Relating to Financial Constraint

"The Plan Update was prepared in response to the federal requirement for a financially constrained regional transportation plan. As such, it serves as a guide for the expenditure of federal, state, and local transportation funds through the year 2010."

(1) Planning Approach

"Over and above the inclusion of financial considerations, the MPO's plan development process and final document were unique, as well as innovative, due to the consideration and treatment of congestion management concerns. . . . This modification, along with financial constraint concerns, sparked a reassessment of system-wide design criteria based on targeting the capacity needs of the peak hour of the day.

"With the adoption of this approach, the MPO shifted from a needs-based planning philosophy to one that attempts to achieve a critical balance between financial constraint and planning for a level of service that meets future mobility needs.

"As stated earlier, this congestion management approach, along with financial constraint concerns, resulted in the MPO re-thinking the design benchmark that it had historically used to ensure a certain level of service (LOS) on the region's freeway system at the peak hour. Generally, the expectation was that the majority of the region's freeway system would operate at LOS C conditions or better for the entire day, including peak travel periods. This approach would likely obligate the region to build more physical capacity."

(2) Revenue Forecasts

"The 1993 Plan Update was adopted prior to the issuance to the final

rules and guidance by the U.S. DOT. The plan identifies $15.2 billion (in 1993 dollars) in transportation system investments to be applied over the next 17 years. This contrasts sharply to the MPO revenue estimates available to the region during the planning period if current funding practices continue. If no new sources are secured and funding levels do not change, the MPO expects that the region will receive $5.8 billion during the planning period, resulting in a $9.4 billion shortfall.

"The Plan Update contains a financial component that is based on the premise that increases in traditional revenue sources, as well as some non-traditional sources, will cover this $9.4 billion shortfall. It assumes that real growth in travel and fuel consumption will continue, resulting in increased motor fuel tax revenues and higher motor fuel tax rates, and that the public will accept higher transportation user fees to finance transportation projects.

"Revenue projections of traditional sources appear to reflect trends and historical averages. Even without new taxes, Federal and state motor fuel revenues are forecasted to increase on average by 1 percent per year as a result of the region's growth in vehicles mile of travel (VMT) and its increase in motor vehicle fuel usage.

"Other less traditional revenue forecasts may be based on optimistic assumptions, such as the increase in vehicle registration fees from an average of $50 per year to $200 by the year 2000. The Plan Update also assumes that TxDOT, DART, and FWTA will double their rate of expected federal and state discretionary fund receipts. According to the Plan Update, this is based on the assumption that, 'historically, large urban areas which are making capital expenditures on new rail systems, HOV lanes, and major roadways in high cost corridors receive higher levels of discretionary funding.' Even so, the MPO has not demonstrated in its documents or the planning review any analysis to support this conclusion."

(3) Analytical Tools

"The plan's financial component supports only one 'vision,' yet the MPO staff indicated during the planning review that they have designed analytical tools, such as financial spreadsheets, which can be used to test the impact of different funding assumptions. Along with their travel demand capabilities, they can demonstrate the system-wide effects of not proceeding with different projects. According to Michael Morris, Director of Transportation for the MPO, this capability provides him and his staff with a means to communicate more effectively to policy makers regarding hard choices; e.g., what new revenue sources or funding mechanisms are necessary if the region is to move forward with its transportation vision? The MPO might use these analytical tools to evaluate other less optimistic

financial alternatives than the vision in the transportation plan."

b. Comments on TIP Relating to Financial Constraint

"The MPO relies on historic sub-allocations of state and federal funds to develop funding estimates for the TIP. Funding allocations come from TxDOT but, according to the MPO, there is a collaborative approach. TxDOT imposes an obligation ceiling on funds allocated to the region after which the MPO prioritizes its categories of projects, including those for the CMS.

"The region places a high priority on the implementation of TCMs, since they are included in the SIP, and because state regulation fines the MPO if TCMs are not implemented in a timely manner. The MPO is concerned that obligation ceiling limitations set by TxDOT make it technically and politically difficult to fulfill the region's SIP commitments as well as other projects, which are important to the region's mobility.

"The TIP is financially constrained for FY95-97. However, the information is not presented in a manner that would be clear to the average citizen. The MPO states that it is working with TxDOT, which supplies it with financial tables and project information for inclusion in the TIP, to improve the readability and usability of these tables."

c. Observations on Financial Planning and Financial Constraint

(1) Forecasting Alternatives

"Although the Plan Update contains a financial component, it is based completely on the premise that increases in traditional revenue sources, as well as some non-traditional sources, will cover the expected shortfall of $9.4 billion. The MPO may want to demonstrate its consideration of a less optimistic financial alternative (e.g., $5.8 billion in revenue) in the event that there is a revenue shortfall. The 1993 Plan Update was adopted prior to the issuance of the final rules and guidance by the U.S. DOT. Subsequent versions of the plan will need to reflect the federal regulations."

(2) The Transportation Plan as a Planning Tool

"The framework that has been developed by the MPO for analyzing system-wide impacts of different financial assumptions can accommodate the dynamic aspect of not knowing the full extent of the total revenues that will be available to the region during the planning period. Using its analytical tools, the MPO can also demonstrate to decision makers the

significance of securing new funding sources and levels of funding by specific times in the future to meet the current vision for transportation development. This has the potential of stimulating discussion as to which projects are most important to the region, which ones should be funded, or whether or not new funding alternatives should be considered."

(3) Assumptions for Non-Traditional Revenue Forecasts

"Two of the MPO's financial assumptions--that is, an increase in vehicle registration fees and the region's ability to secure federal and state discretionary funding at a much higher rate--appear to be optimistic. Due to these assumptions, it is conceivable that the MPO has pushed the limits of the plan's financial constraint, resulting in the inclusion of a number of projects which the region might not be able to afford."

(4) Data Supporting Financial Constraint

"Although technical personnel can understand the TIP, its presentation of financial data and content are difficult for the average citizen to understand. The federal team suggested that the MPO could supply the public with a separate document that describes the financial data in simpler terms."

(5) Project Scoring

"The financial constraint requirement of ISTEA coupled with the MPO's process of scoring projects has made a difference in the distribution of funds among projects. The ranking process has provided a good vehicle for examining alternatives and has forced elected officials to have more input into the process. The Board members stated that better transportation decisions are being made because the project scoring process lessens bias."

(6) Financial Constraint

"The financial constraint requirement has provided a 'dose of reality.' Along with the integration of the CMS into the transportation plan, the officials have been forced to reconsider their positions on alternative funding sources, including ones that are not politically popular (e.g., the construction of toll roads, the placement of tolls on existing roadways, and other congestion pricing alternatives)."

d. Recommendations

The Federal team recommended that:

i. "[M]ore realistic assumptions applied to traditional and non-traditional revenue sources for the financial component of the transportation plan,"
ii. The MPO provide "presentation of financial data in a simple comprehensive form in the transportation improvement program."

5. Honolulu FTA/FHWA Enhanced Planning Review
(Lyons, 1996b)

a. Organization and Management of the Planning Process: Metropolitan Planning Organization Designation and Membership

"The region has had difficulty meeting federal transportation planning deadlines. OMPO, City and State staff identified several reasons for this occurring. The City and State budget processes, which are not synchronized, provide much of the financial data and policy direction needed to develop products of the regional planning process. Significant progress must occur in these independent processes before the regional transportation planning process has a solid foundation for decision-making. In addition, many of the plans and procedures needed to address federal mandates are still being developed. An additional reason is that the regional process requires significant commitment of staff and resources by participating agencies, commitments that compete with other agency priorities such as the State and City budget processes. Staff said it was difficult to give time to regional planning activities during this period. This carries through to the Policy Committee, which does not usually meet while the State legislature is considering the State budget."

b. Development of the Transportation Improvement Program

(1) Transportation Improvement Program

"ISTEA planning rules, particularly the requirement that the TIP be financially constrained, have resulted in changes to the TIP development process. These changes have required increased coordination between the region, the State, and the other counties. The region intends to change the TIP development process so that it develops a TIP that serves as a strategic document highlighting the region's transportation priorities.

"Development of the TIP requires close coordination with City and State budget and funding procedures. The Draft TIP reflects State and City requests, while monies identified in the Final TIP represent those budgeted by the City and State six-year capital improvement programs. The TIP financial plan reflects the revenue projections and appropriations in the State and City budget acts. The financial planning process is

described in greater detail later in the report.

“The TIP is a three-year program that is updated on a bi-annual cycle to accommodates the State's bi-annual budget cycle. The TIP is reassessed and amended each year to accommodate the City's one-year budget cycle. The Fiscal Year (FY) 1994, 1995, and 1996 TIP identifies $776 million in programs and projects over the three year program period. FY 1994 costs total $258 million, including the largest single program cost of $96.6 million for operating the bus system, called TheBus. The second largest project is the construction of H-3 at $65 million. FY 1995 projects cost $248 million and FY 1996, $270 million.

“The FY 1994, 1995, and 1996 TIP is not linked to a financially constrained Plan meeting ISTEA requirements. The most recent Plan was approved in 1991 and is not financially constrained. The TIP does incorporate ISTEA requirements, and future TIPs will be linked to regional plans meeting ISTEA requirements. Adoption of a new ORTP will be the starting point for the next TIP.”

(2) Observations and Recommendations: **Procedures**

“OMPO and the participating agencies are reminded that disciplined and timely procedures and strong institutional relationships are essential to ensure that the ORTP and TIP are financially constrained.”

c. FHWA and FTA Administrators' Focal Points

(1) Financial Planning and Financial Constraint

“The State controls the majority of funds available for transportation planning, investment, operation and maintenance activities in Hawaii. Due to the previously cited non-contiguous States exemption, the Honolulu metropolitan area does not receive a specific amount of STP funds by virtue of its population. The City, as operator of the transit system, receives direct FTA funding.

“In the past, the metropolitan planning process had used estimates of historic sub-allocations of State and Federal funds, along with anticipated City funds, to develop a financial plan. The State has developed a new method for distributing funds. Rather than use an allocation formula, each County will identify projects, total project costs and local sources of project funding. The State will provide funds for those projects which, with the addition of State matching funds, will be fully funded. The State would financially constrain the STIP by dropping State sponsored projects, with the provision that the progress of County sponsored projects would be

monitored and re-evaluated in June. The STIP would then be amended by replacing County projects that had not progressed with State sponsored projects that were ready to begin. The State was developing, and had not implemented, this allocation process when OMPO amended the TIP late in 1994.

“OMPO amended the TIP in late 1994 to program funds for several transit projects. The City of Honolulu, which operates the transit system, wanted to move these projects forward with minimal delay. The City and other participants in the regional planning process were concerned that the State's implementation of the new allocation process would delay the metropolitan area's TIP development process. The majority of the projects included in this TIP amendment were funded from local and FTA sources. Sufficient FTA funds were not available for two transit projects. The State allowed the MPO to program STP funds for these two projects, with the caveat that these projects may not be funded once the STIP development process was completed.

“The TIP amendment, including these STP funded projects, was adopted by the MPO and approved by the Governor prior to the completion of the STIP. The adopted STIP did not include the two transit projects, which required OMPO to amend the TIP is response to the State action. Although both the MPO and the State knew that funding for the two transit projects was uncertain, it is unclear whether this information was generally made available to the public and to others involved in the transportation planning process.

“The changes at the STIP level reflect a decision by the State to use STP-Flexible funds for transit projects in Hawaii, Maui, and Kauai Counties, but not in Honolulu. In a letter from the FHWA Division Administrator and FTA Regional Administrator approving the STIP, subject to satisfactory resolution of several issues, FHWA and FTA recommended that the issue of transferring STP funds to Honolulu's transit program be reconsidered. This recommendation was made in light of the fact that Honolulu had deferred transit capital projects due to lack of federal funds and the funds required for highway projects programmed for FY 1995 will not use all available obligational authority.

“This revised distribution approach has added some strain to Honolulu's metropolitan planning process because, before the State will commit funds, projects must be identified by each of the State's four counties. Honolulu has significant experience in developing projects, estimating costs and identifying match funds. According to OMPO, State and City staff, this is a new process for the other three counties. To improve this process, the State has created a Countywide Transportation Planning Process (CTPP), which includes State agencies and each County's

Department of Public Works. OMPO and the State are working with all four Counties to help them improve their planning and project development processes. The CTPP should help contribute to the development of more useful financial forecasts for the metropolitan area and should improve both the metropolitan and the statewide transportation planning process.

"Financial planning for the development of the ORTP began with estimates of revenue requirements of project meeting future needs. Proposed projects were analyzed for cost-effectiveness in meeting regional transportation needs. Future funding was estimated based on the assumption that funding will continue at historic levels, adjusted by a 3% annual growth rate. There is no assumption that additional funds will become available in the future.

"Financial constraint in the ORTP is made difficult by the need to have a regional transportation plan that reflects regional land use planning decisions. All the regional land use planning scenarios being developed by the City assume that the HRTP will be built. This project has no committed funding source or financial plan. Without a funding plan that includes both expected sources of funds and a description of how these funds will be made available, inclusion of the proposed HRTP in the ORTP will result in an ORTP that is not financially constrained. Both transportation and land use planning assumptions should reflect that the HRTP has no committed source of funds; transportation and land use scenarios that do not include this project should be considered.

"Operation and Maintenance (O&M) costs of the existing highway and transit system are based on historic costs. Twenty-one percent of highway spending goes towards O&M. Future O&M costs for the expanded highway system are projected based on costs to operate and maintain the existing system. The financial planning process assumes that a mile of new road will cost the same to maintain and operate as a mile of existing road. The State maintains its roads on a ten year cycle, while the City uses a four year cycle. HPTA is conducting studies to assess future capital and operation funding requirements for the existing and expanded systems."

(2) Observations and Recommendations

(a) Coordination of the TIP and STIP Processes

"The MPO included two transit projects in the most recent TIP amendments which were identified as being funded using STP funds. This was done with the understanding that, upon completion of the STIP

development process, the State may choose not to fund these projects. The State chose not to fund the projects, resulting in an unconstrained TIP resulting from a decision outside of the regional transportation planning process. Improved coordination would avoid this situation occurring in the future."

(b) Financial Forecasts

"The CTPP should help contribute to the development of more useful financial forecasts for the metropolitan area and should improve both the metropolitan and the statewide transportation planning process."

(c) Constrained ORTP

"All regional land use scenarios assume a HRTP will be built. Without a funding source, inclusion of a proposed HRTP in the ORTP will result in a financially unconstrained ORTP. Both transportation and land use planning assumptions would appear to be incomplete if a HRTP financial plans are not established; other transportation scenarios that do not include this project may need to be considered. The ORTP should include a financial plan describing how a HRTP will be funded, including funding strategies and available resources."

6. Kittery Area Case Study
(Cambridge Systematics, Inc., 1995)

a. Introduction

(1) Presentation of Financial Information

"The Transportation Improvement Program (TIP) consists of eight sections and three appendices. The Financial Assessment is about one page. The list of projects presents detailed tables showing each project's amount of federal, state, local, and other funding broken out by the programmed amount and the latest total estimate and project year(s).

(2) Population and Employment

"The Kittery Urbanized Area covers a small section of the Portsmouth-Dover-Rochester New Hampshire Urbanized Area and includes portions of five towns in Maine: Kittery, Eliot, South Berwick, Berwick, and Lebanon. According to the 1990 U.S. Census, its urbanized population is 13,515 and constitutes 9.4 percent of the entire, bi-state urbanized population of 143,343. Total population is 30,836. Although Kittery and Berwick urban population decreased between 1980 and 1990, the overall

urban population has steadily increased since 1970.

"The outlet malls along Route 1 and the Kittery Naval Shipyard have historically provided a strong employment base for the area. Berwick and South Berwick have small business districts. Despite recent layoffs at the shipyard, the region's employment is expected to grow in the future. The Urban population is projected to increase 15 percent over the next 20 years from 30,836 to 35,400."

(3) Existing Transportation System

"The Kittery Urbanized Area is served by one interstate route (I-95), U.S. Route 1, multiple state routes (S.R. 4,9,91,101,103, and 236) and local roadways. Two transit agencies operate in the area. Cooperative Alliance for Seacoast Transportation (COAST) provides a fixed route bus service connecting Berwick (ME) with Dover and Somersworth in New Hampshire. Also, the York County Community Action Corporation (YCCAC) provides demand-responsive service in the urbanized area.

"Between federal mandates and the needs of a growing community, the nature of transportation projects is slowly evolving. According to standards set forth by the Clean Air Act (CAA), the Kittery Urbanized Area has been designated an ozone non-attainment area and must take measures to reduce vehicle emissions to reach CAA standards. The transportation plans can not [sic] reflect any activity that may cause or contribute to new violations of air quality standards. At the same time, the ISTEA Act of 1991 sets forth guidelines by which MPOs should achieve economically efficient and environmentally sound transportation systems. Projects in the current TIP range from road and bridge reconstruction to pedestrian and bicycle route improvements and transit (capital and operating) projects."

(4) Kittery Area Comprehensive Transportation Study (KACTS)

"The Metropolitan Planning Organization (MPO) for the Kittery Urbanized Area is one of only a few MPOs with responsibility for transportation planning in a portion of a bi-state, urbanized area. In 1982, the Kittery Area Comprehensive Transportation Study (KACTS) was designated the metropolitan planning organization (MPO) for the Maine portion of the Portsmouth-Dover-Rochester (NH) Urbanized Area. KACTS consists of representatives from the Maine Department of Transportation (MDOT), the Southern Maine Regional Planning Commission, and from the towns of Kittery, Eliot, South Berwick, Berwick, Lebanon and one representative of the transit providers. It is a non-voting member of the Sea Coast

Metropolitan Planning Organization on the New Hampshire side. Although there is strong cooperation between the two organizations, the Maine and New Hampshire MPOs develop their TIPs independently.

"The KACTS Policy / Technical Committee, as the MPO designee, makes decisions at the local level. Technical and administrative support is provided by the Southern Maine Regional Planning Commission and the MDOT."

b. Process

(1) Basic Steps

"The TIP includes all projects requesting federal and state funding. The process involves multiple steps over a one-year period. These steps consist of:

1. Seeking input from town officials and the public, the five towns submit their lists of proposed transportation projects for the coming three-year TIP. At the same time, transit agencies (YCCAC and COAST) prepare revenue projections, operating cost estimates, and capital projects for inclusion in the TIP.

2. The KACTS Policy/Technical Committee compiles the lists into three categories (conventional roadway proposals, transit proposals, and 'other' proposals) and submits a preliminary list to MDOT.

3. MDOT develops costs estimates for each proposed highway project by visiting and evaluating proposed project sites throughout the state. In the Kittery area, these officials are met in each town by public officials who can answer questions about the project.

4. MDOT determines statewide funding allocations for a two-year period and forwards these along with the project cost estimates (as developed in Step 3) back to the MPO

5. The KACTS Policy/Technical Committee totals its available funding and project costs for each of the three categories (roadway, transit, and other). If any category's total project cost exceed [sic] available funding, the Committee reconciles the deficit by ranking projects according to it's project selection procedure. The Committee either deletes entirely or delays the lowers-ranked projects until the TIP's third year.

6. Selectmen, Councils and the public review and comment on the 'short' list of projects and then the Committee sends its final list to MDOT.

7. MDOT incorporates the selections into three-year statewide TIP (STIP). In the STIP, MDOT also includes projects which do not undergo the MPO prioritization process. These projects, which include interstate maintenance, bridge and safety projects, compete for funds at the state level.

8. MDOT sends the final list back to the committee, which must approve the TIP.

9. MDOT submits the STIP to the state legislature, who [sic] reviews and modifies the list, then approves the STIP.

(2) Changes Due to ISTEA Financial Constraints

"The MPO has toughened its project selection process as a result of ISTEA financial constraints. In Step 6 (described above), the MPO's Policy/Technical Committee totals project costs and projected revenues for transit, conventional roadway and 'other' projects. If any of the three categories shows a funding deficit, the MPO applies a set of selection criteria in order to rank projects. The MPO uses specific criteria for each of the three categories of project:

- The two transit agencies received sufficient funding for their proposed list of projects; thus, the MPO approved their portion of the TIP without any modification. When deficits occur, the MPO ranks transit projects across five criteria including cost effectiveness, demand, and alternative service. The majority of these projects receive assistance from FTA.

- Conventional roadway projects are ranked in terms of their cost-effectiveness. Cost effectiveness is defined as a ratio between the project's unit cost and the expected changes in yearly traffic on the facility, pavement condition, congestion, geometrics, and safety. Road projects are generally funded under the Surface Transportation Program.

- Other projects are ranked according to their contribution to maintaining existing infrastructure, reducing air pollution, promoting intermodal travel, regional continuity or energy conservation, or reducing demand for motorized travel. 'Other' projects may be funded with CMAQ, Transportation Enhancement, or STP funds.

(3) Processes' Advantages and Disadvantages

"As a relatively small community, the Kittery Urbanized Area has a small number of transportation projects, an even smaller number of stakeholders, and a cooperative spirit. In addition, ISTEA requirements for public input allow for significant local influence, thus the community usually endorses the resulting TIP. The Committee and KACTS staff, therefore, identify few difficulties in producing a financially constrained TIP. A disadvantage of the process concerns the final step (Step 8) where the state legislature may cancel or add projects at will after MDOT approval. During the legislatures appropriation and authorization of funding, for example, MPO officials find some projects have been deleted, while others, such as a bridge or resurfacing projects, have been added."

c. Cost Estimation

(1) Methodologies and Tools

"The MPO is not responsible for estimating costs for highway or transit projects, but it must rank projects based on their cost-effectiveness. MDOT officials determine the initial cost estimates for highway projects. Most committee members visit each project site and help estimate a project's cost. Their estimates consider land prices, labor and materials, obstacles to right-of-way acquisition, length of the road segment, complexity of proposed project, and federal environmental standards are factored into the equation.

"The region's two transit agencies, YCCAC and COAST, develop their own budget estimates for capital projects, operating expenses, and maintenance costs. Budget estimates are based on a combination oh historical funding levels, ridership trends, and projected operating and capital costs."

(2) Changes Due to ISTEA

"The KACTS Committee has limited involvement in MDOT's cost estimation for individual projects. Financial constraints due to ISTEA, however, have forced some projects to be moved into the third, unfunded year of the TIP. As a result, KACTS routinely requests copies of MDOT's notes from the project sites visits and will scrutinize MDOT's cost estimates of the deferred project. Overall, KACTS has found that MDOT's cost estimation methods in recent years have produced accurate estimates."

d. Revenue Projections

"ISTEA financial constraint requirements have made revenue projections

a critical part of the TIP process. MDOT ranks proposed transportation projects at a statewide level and allocates funds based on need. Some pots of money are sub-allocated to be used at the MPO's discretion. Other funds are allocated according to a statewide ranking system, such as in the case of Interstate Maintenance, Bridge and Safety programs. Revenue is based on existing federal and state authorization levels for the two-year STIP. For the third, unfunded year of the TIP, MDOT relies on rough estimates.

(1) Federal Funding Sources

"Although total federal funding levels have remained relatively constant, ISTEA has shifted categories of spending. As an ozone non-attainment area, CMAQ funds are now available to assist the region in reducing vehicle emissions. The following categories are significant federal funding sources for the Kittery area:

- FTA Section 9, Operating funds amount to $76,900 and Section 9 Capital Assistance amounts to $26,100 annually.
- National Highway System (NHS) funds are estimated at $91,760 for three projects
- Transportation Enhancement Activities (TEA) are projected to decline in significance in the future.
- Congestion Mitigation & Air Quality (CMAQ) amount to $92,100 and include funding for two park and ride facilities.
- Surface Transportation Program (STP) account for $1.8 million of the programmed funds in the three year TIP. Projects funded with STP range from traffic operational improvements and intersection realignments to highway reconstruction and resurfacing.
- Highway Trust Funds, Bridge and Safety funds account for $3.0 million, but their allocation is determined by MDOT through a state-wide ranking.

"Although officials are aware of the flexibility for reprogramming traditional highway funds to transit or other uses, this flexibility is not exercised. Perhaps due to the small-scale nature of the projects and limits amount of transit service, funding for all entities during the present TIP appears to be sufficient using the funding sources for their primary purpose."

(2) State Funding Sources

"State revenue comes from motor vehicle tax and general funds. State matches comprise significant portions of transportation projects, including $341,700 toward highway projects, $519,400 toward bridge projects, and $12,500 toward transit operating costs. All sources appear to be relatively stable and certain in the future."

(3) Regional, Local, and Private Funding Sources

"The five towns, county, and two transit agencies must provide matching funds for state and federal revenue sources. These local matching funds come from the towns and county general fund and property tax. The transit agencies use transit fare revenue (for COAST only). More, specifically, local matching funds contribute:

- $154,800 toward STP-funded projects,
- $22,900 toward CMAQ projects,
- $68,495 to transit operating costs and $6,000 to transit capital costs; and
- 50% of projects requesting FTA Section nine operating funds.

"The existing sources of local funding appear sufficient to maximize the regions [sic] share of available state and federal matching requirements. The exceptions are the region's two transit agencies, YCCAC and COAST. The transit agencies' requests for federal and state funds are limited by the fact that federal and state assistance requires a local match. Federal funding for operating costs requires a 50 percent local match from either farebox revenue or town funds. Both agencies have insufficient local funding, and therefore are constrained in their request for matching federal and state funding. None of the local jurisdictions nor the transit agencies, however, have gone beyond discussing innovative or new sources of local revenue."

e. Cost/Revenue Reconciliation

"The TIP process begins with sponsoring agencies (i.e., local jurisdictions and transit agencies) submitting their proposed projects to the MPO. In most circumstances, this bottom-up approach would generate a 'wish list'. KACTS, however, informs these agencies that their submittals will be ranked according to technical and financial selection criteria. At the point of cost/revenue reconciliation (see Step 5 in the TIP development process, described above), KACTS pushes the lowest ranked projects beyond the TIP's three-year funding horizon. MDOT's exclusive role in project cost estimation prevents MPO or sponsoring agencies from reducing a project's cost during this reconciliation step in order to squeeze it into the TIP. MDOT's role as an impartial provider of cost estimates and revenue projections buffers reconciliation process from depressing costs

or inflating revenues. Thus, the MPO must financially constrain the TIP by either eliminating projects from funded years or finding new sources of local revenues."

7. Miami FTA/FHWA Enhanced Planning Review
(Lyons, 1996g)

a. Development of the Plan

(1) Long Range Transportation Plan

"ISTEA requires that a new or updated Plan, reflecting ISTEA requirements, be adopted by December 18, 1994. At the time of the EPR, an updated LRTP was not yet in place for the Miami metropolitan area and, according to the MPO staff, the Year 2015 LRTP was not expected to be adopted before the Fall of 1995. The current LRTP 2010 was adopted in 1990 prior to the passage of ISTEA and was not financially constrained (as discussed in Section V.A).

"The Steering Committee meets twice per month to discuss progress on the update. The update is a multi-step process which includes identifying the transportation system needs, assessing what would be required to meet those needs through highway only and transit only alternatives, and then combining those alternatives in the most efficient manner to meet the financial constraint required in ISTEA. The final LRTP will then contain a financially constrained plan and a needs plan which considers all needs regardless of available resources.

"According to MPO staff, new project selection criteria based on the 2015 LRTP objectives are being developed and will be applied to the 2015 LRTP. The Steering Committee intends to rank projects by the criteria established for each of the five categories of objectives listed above. They would then address fiscal constraint issues on a project by project basis and re-rank the projects based on fiscal constraint analysis. In the current 2010 LRTP, estimated levels of urban travel congestion based on adopted LOS standards from the County's CDMP appear to be the primary project selection criteria. The new criteria being developed for the 2015 LRTP update are intended to incorporate other measures as well as LOS standards in the project prioritization process. When this EPR was being conducted, little detail was available regarding how these new criteria were being developed, how they would be applied, and whether they would be applied at the agency or the MPO level."

(2) Observations and Recommendations: **LRTP Update**

"Updating the 2015 LRTP as soon as possible will be very important to the metropolitan area. The update should reflect a multimodal evaluation of a range of alternative transportation investments to address short-term and long-term needs, and be financially constrained. An effective LRTP would provide a clear link to, and justification for, transportation investments and strategies contained in the TIP and the UPWP. The FHWA and FTA will consider the status of the LRTP update in making their planning finding on the new TIP. Without an updated LRTP, only 'grandfathered' or 'exempt' projects may be able to proceed."

b. FHWA and FTA Administrators' Focal Points

(1) Financial Planning and Constraints

"ISTEA requires that all plans and TIPs be financially constrained such that the total costs of projected transportation investments and improvements are covered by projected revenues. As the lead planning agency, an MPO must develop plans which meet this requirement. Close cooperation between the MPO, the state, and participating agencies is required to ensure the development of realistic and constrained estimates.

"The Metro-Dade 2010 LRTP, which was adopted prior to ISTEA's passage, is not financially constrained. The twenty-year highway proposals are estimated to cost approximately $4.1 billion, primarily for capacity expansion and enhancements. The proposed transit improvements are estimated to cost $11.4 billion. Identified transit needs call for provision of over 60 miles of exclusive right-of-way priority service along six major travel corridors with corresponding increases in bus and rail rolling stock, including the cost of operating the expanded system.

"The 2010 LRTP identified insufficient revenues in all areas, assuming continuation of existing sources at current levels. For highways, in addition to an overall 20-year unspecified shortfall, a funding deficit of over $400 million is predicted for the first 10 years of the LRTP horizon. For transit, the LRTP states that no funds are available for the proposed system needs, except for capital projects for which monies are already earmarked, such as the Metromover extension (approximately $225 million). In addition to any federal and state funds that would have to be allocated to the rapid transit improvements, substantial local funds would also need to be raised.

"As discussed under Section IV.A, the 2015 LRTP update currently under development will include two parts, one part financially constrained and the other, a needs plan identifying the revenues needed to meet all currently identified transportation needs. To address the financial constraint requirement of the 2015 LRTP update, a consulting firm

developed a financial resources plan which identified existing and prospective funding sources for transportation improvements through the year 2015. The financial plan is based on the historical flow of various revenues from federal, state, and local sources and the projected growth in population, vehicle ownership, and tourism. Future revenue projections are calculated using current allocation formulas to distribute federal and state funds, and incorporate local matching revenues derived from sources including the local option gas tax discussed in Section IV.B. Preliminary estimates of available resources from the financial resources plan total approximately $14.425 billion through the year 2015.

"The financial resources plan includes farebox revenues derived from MDTA ridership which project an increase in the proportion of the transit share of the traveling population of 0.5% annually with no change in existing service scheduling or area served. This would represent an increase in passenger boardings of 72% over current boardings by the year 2015. The plan does not include port derived revenue sources despite the fact that port access improvements, similar to airport access improvements, may require substantial investments of resources during the 2015 LRTP planning horizon. The financial resources plan was drafted in December of 1994 and does not include the updated population projections which were recently released by the Metro-Dade Planning Department in March of 1995. The revised estimate of 2.8 million residents in Dade County by the year 2015 is approximately 330,000 higher than the estimates contained in the financial resources plan and could have a significant impact on revenue projections as well as resource needs.

"While the 1995 TIP is financially constrained, this is not clearly presented in the financial tables in the TIP. The 1995 TIP categorizes all transportation improvements and identifies priorities which establish multi-year fiscal programming. The 1995 TIP identifies all sources of funding which are known or are anticipated to be available during the program period. Operating and maintenance costs are reflected in the current TIP and, according to MPO and FDOT officials, these costs account for approximately 17% of highway funds and 80% of transit funds. Operating and maintenance costs projected for the existing highway and transit systems are based on historic costs.

"In many regions, FHWA Surface Transportation Program (STP) and FTA Section 9 funds are the most commonly used sources of flexible funding between highway and transit modes. In the Miami area, STP funds are partially used to fund highway maintenance in accordance with FDOT's Work Program Instructions which require resurfacing targets in all areas with a population over 200,000 to be met with XU (Surface Transportation, Areas >200,000) and XA (Surface Transportation, Any Areas) funds.

However, XU funds are also being "flexed" for transit projects such as the Metrorail Extension to Palmetto. Furthermore, according to FDOT staff, a minimum of the 14.3% of the State Transportation Trust Fund is allocated to transit use. Conversely, FTA funds have been 'flexed' in part to fund park and ride lot expansions and improvements at locations throughout the Metrorail system.

"The Metro-Dade MPO is currently addressing a number of issues that will affect how future transportation improvements are financed. There is a debate between members of the MPO and participating agencies regarding whether to include FTA Section 3 discretionary funding in the LRTP update and the TIP and, if so, what constitutes a 'reasonable' estimate of those revenues. The potential impact of FDOT's East-West and MIC studies has also raised concerns regarding financial constraint in the LRTP and the TIP. According to MPO staff, inclusion of elements of both projects upon reaching the design, engineering, and construction phases will be on a minimum operable approach, funding segment by segment as resources are identified.

"The MPO is also looking towards the formation of a Dade County Expressway Authority as a means to raise future revenues. Enabling legislation to create the Authority was passed by the state legislature in 1994. The Authority would have the power to levy tolls and use the proceeds fortransit or highway improvements, including transit operating expenses. Efforts to ensure on-going integration of financial constraint into the planning process are also reflected in a preview of the 1996 UPWP. A new task under Objective B: Short-Range Transportation System Planning and Management addresses Transportation Program Financial Analyses and Assessments. The task calls for preparation of critical assessments of available and future resources to meet the LRTP's program funding requirements. The iterative process of integrating the development of FDOT's Five-Year Work Program and the Metro-Dade TIP cited earlier in Section III.B also enhances financial constraint."

(2) Observations and Recommendations

(a) Financial Resources Plan

"With the multitude of projects and multimodal proposals under consideration, disciplined and rigorous financial planning is vital to the successful realization of the Metro-Dade transportation program. The MPO, State and transit operator should continue to place a high priority on the development and update of financial plans which reflect fiscal constraint and alternative revenue strategies."

(b) Transit/Port/Airport Financial Elements

"A complete regional transportation financial plan will require the inclusion of transit investments which are contemplated over the long-term as well as operating and maintenance costs for the short and long-term. Furthermore, as appropriate, financial elements of the Port and Airport financial plans should be referenced where they are relevant to the surface transportation system."

(c) Fiscal Constraint

"While the 1995 TIP is financially constrained, future revised TIPs would be more effective documents if they contain additional tables showing total revenue sources by source compared to total expenditures by expenditure category to clearly illustrate the TIP's financial constraint."

(d) Operation and Maintenance Costs

"Operating and maintenance costs of the existing transportation system should be clearly identified in both the LRTP and TIP documents to ensure a complete picture of system expenditures."

(e) Flexible Funding

"The allocation of funds to transportation improvements should be based on the outcome of the planning process, the evaluation of investment options, and the priorities established thereby. Federal requirements provide flexibility to MPOs, states and transit operators to allow multimodal investments to be made with federal funds, in accordance with the priorities and long-term objectives of the metropolitan regions, in cooperation with the states."

(f) Discretionary Funds

"The financial plan for the updated 2015 LRTP and 1996 TIP should address all sources of funding, including FTA Section 3 Discretionary Funds, using reasonable assumptions based on historical trends."

8. New Orleans FTA/FHWA Enhanced Planning Review
(Lyons, 1996d)

a. Development of the Plan and Transportation Improvement Program

(1) Transportation Plan

"The current version of the Transportation Plan was adopted in December 1994 and is the first financially constrained Plan produced to meet ISTEA requirements. An earlier long-range transportation 'needs' plan adopted in December 1992 was not financially constrained. The December 1994 Plan consists of three major elements:

- "an introductory section that summarizes how the ISTEA 15 planning factors have influenced the metropolitan area planning process and the development of the Plan;

- "a description of the five components of the Plan development process: travel demand modeling, air quality conformity analysis, intermodal goods movement, financial constraint, and public involvement;

- "a listing of projects included in the Transportation Improvement Program (TIP) for the five-year period beginning in 1994, and a long-range element extending to 2015."

(2) Transportation Improvement Program

"Most projects enter the programming process following the completion of technical studies. RPC's TAC must review and approve all projects before recommendation of the TIP to the Policy Committee and Commission members for approval. RPC staff noted during the site visit that the state legislature can still influence the selection and prioritization of certain projects, although the role of its joing consultation process with LDOTD is becoming increasingly important. RPC staff also stated that ISTEA financial constraint requirements have been a major factor in rationalizing the process by which the TIP is developed. The staff does not perceive that the MPO's role varies substantially in relation to programming the various categories of federal transportation funds, but acknowledges subtle and informal gradations in the degree of control the MPO exercises, with its influence being greatest over the allocation of Surface Transportation Program funds attributable to the New Orleans metropolitan area under ISTEA."

b. FHWA and FTA Administrators' Focal Points

(1) Financial Planning and Constraint

"The Transportation Plan and TIP for the New Orleans metropolitan area are fiscally constrained. RPC worked cooperatively with LDOTD on the

development of revenue projections for the highway element of the Transportation Plan based on historical patterns of federal and state funding over the previous 40 years, supplemented by estimates of funding from other sources. This analysis indicated that the New Orleans metropolitan area receives approximately $22-23 million annually in federal funds for programming purposes. Funding from other sources, including the Transportation Trust Fund, bridge tolls, The Transportation Infrastructure Model of Economic Development, and State bonds, was estimated at $6-10 million annually, accounting for a recent ceiling on State bonding capacity and the limited money available for new construction under the Louisiana Highway Trust Fund.

“Transit revenue projections are based on the assumption that federal formula fund apportionments will continue at current levels of approximately $11.5-12.0 million per year. Section 3 discretionary funds are programmed only for high priority expenditures, principally bus replacement, and for projects identified in current or pending Congressional authorizations. Sources of matching funds are a 1 percent sales tax in Orleans Parish and a property tax millage in Jefferson Parish.

“Total costs for both highway and transit projects are the sum of all the individual projects included in the TIP and Plan. No information on cost estimation is provided, and operations and routine maintenance costs are not accounted for on an explicit, systemwide basis, although life-cycle costing is performed for new construction projects. Neither the TIP nor the Plan includes a summary of revenues versus costs. RPC has undertaken a study of alternative financing mechanisms to determine what options may be viable to pay for improvements that have been dropped from the region's transportation program due to lack of funding.”

(2) Observations and Recommendations

(a) Improved Documentation

“Improved documentation of the financial analysis in future versions of the Transportation Plan and TIP would help to communicate the magnitude of potential problems and focus attention on how shortfalls can be addressed. This analysis can build on the study of alternative funding sources currently underway. RPC also could consider the sensitivity of its financial analysis to potential future cutbacks in federal funding.”

(b) Operations and Maintenance Costs

“RPC and its partners in the planning process should develop a consistent set of operations and maintenance cost factors based on data collected

from local, regional, and state transportation agencies."

9. New York FTA/FHWA Enhanced Planning Review
(Lyons, 1996e)

a. Development of the Regional Transportation Plan

"The foundation of the RTP is the identification of eight critical regional issues and corresponding goals and objectives for each issue as follows:

"8. Financing- Goal: To identify resources -- from both public and private sources -- that can reasonably be expected in order to implement the 2015 Plan equitably and efficiently.

- To reduce the cost of operating transportation systems by increasing operational efficiencies.
- To minimize the amount of time needed to develop, to implement, and to complete projects.
- To increase funding available to maintain existing transportation systems and to build new facilities by developing new privatization efforts as well as innovative financing techniques.
- To assure a stable flow of transportation funding for operating and capital projects."

10. Northern New Jersey FTA/FHWA Enhanced Planning Review
(Lyons, 1996h)

a. Development of the Regional Transportation Plan

"[T]he financial component of the RTP focused largely on near-term regional needs. While the current RTP represents significant progress towards providing a regional framework for transportation decision making, there is currently no 'unfunded needs' or 'vision strategy,' as reflected in the RTP focus on near-term projects from the current TIP. A 'vision strategy' component would examine possible investment scenarios over the twenty-year RTP horizon based on the availability of different levels of funding and could serve as a tool to build the necessary support for the steps needed to realize that vision. In contrast, the present planning processes appear to be primarily 'bottom-up project-driven' rather than 'top-down plan-driven,' focused on 'keeping the pipeline moving' as evidenced by:

- A process that relies heavily on the pre-programming efforts of the NJDOT and NJ Transit, where processes are strongly dominated by a long pipeline of projects.

- Project backlogs that determine many decisions rather than systematic assessments of problems and needs.

- There is some tendency to minimize the importance of a 'top-down plan-driven' process because existing resource constraints result in a TIP program focused primarily on rebuilding and maintaining existing systems."

b. FHWA and FTA Administrators' Focal Points: Financial Planning and Financial Constraint

"NJTPA's recently adopted RTP and TIP appear to be fiscally constrained. Currently, the NJTPA region receives $1.2 billion annually in combined state and federal transportation funding. State funding is expected to increase substantially as a result of the pending reauthorization of the State Transportation Trust Fund (TTF). The TTF is the primary source of state funding. TTF revenues come from dedicated motor fuel taxes, General Fund appropriations, heavy truck/diesel fees, and contributions from toll road authorities. In accordance with a 1984 agreement with the State, the annual budgets for the NJ Highway Authority and the NJ Turnpike Authority include annual contributions to the State TTF in the amount of $10 million and $12 million respectively.

"TTF renewal legislation, now under development, would reauthorize the TTF and result in substantially increased state funding for transportation. The Governor has proposed increasing the portion of the motor fuel tax dedicated to transportation through the TTF from the current 2.5 to 5.5 cents. Each 1 cent of the motor fuel tax generates approximately $40 million each year. These projected changes would increase NJDOT and NJ Transit capital projects funding by approximately $200 million per year to $665 million, substantially increase local aid grants, and introduce state- funded transit operating subsidies.

"While state funding is projected to increase, NJTPA expects federal funding to decrease by at least 10% due to pressures to reduce the federal deficit. NJTPA also assumes the continuation of the 'soft match' provision under ISTEA, which recognizes investments by local transportation authorities as creditable for the non-federal share of projects. The soft match provision means that New Jersey will be able to draw down all available federal funds without having to draw a cash state match from the State TTF. The RTP identifies a number of possible future funding sources under consideration including the following:

Congestion Pricing, Motor Vehicle Property Tax, Value-Capture/Tax Increment, VMT Fee, and Weight-Distance Pricing.

"The resulting combined revenues available to the region will total $1.38 billion annually, $8.28 billion over the next six years and $27 billion over the next 20 years. According to the RTP, this revenue stream will be sufficient to preserve much of what is in place, help optimize system performance, and provide modest capacity enhancements, creating a number of strategic new commuting alternatives. The importance of 'soft match' was repeatedly stressed by NJTPA and local implementing agencies as vital to making more resources available to the region. NJDOT estimates that $24.5 million in toll revenues from local transportation authorities, which could be considered 'soft match,' will be used for construction and maintenance of highways, bridges, and tunnels.

"The TIP is fully constrained in the first three years and for the last two fiscal years, an over programming margin of 25% is permitted. The $8.28 billion over the next six years will be sufficient to cover the $7.84 billion in projects programmed for implementation in the NJTPA's TIP as well as $400 million reserved to address emergencies, increased project costs, or further reductions in federal aid. The TIP takes full advantage of the funding flexibility offered by ISTEA with $75.23 million in STP funds and $106.624 million in CMAQ funds anticipated to be flexed" to NJ Transit over the five-year program. According to NJDOT staff, the agency has also voluntarily imposed constraint on its planning process in an effort to improve its ability to focus on the TIP as an implementation document."

11. Philadelphia FTA/FHWA Enhanced Planning Review
(Lyons, 1996i)

a. Summary

"[T]he federal team identified specific areas of activity where continued progress should improve the transportation planning process in the Philadelphia metropolitan area. These include the following areas:

- "Further development of a more specific long-range plan, with the identification of investments (or placeholders), particularly for improving conformity and financial analyses.

- "Refinement of the financial component of the 2020 Plan, assuming it is comparable to what was completed for the 2015 Plan."

b. Development of the Transportation Plan and Transportation Improvement Program

(1) Regional Transportation Plan

"The lack of project specificity raises a number of issues. First, determining whether or not the long-range planning effort is financially constrained is difficult."

(2) Transportation Improvement Program

"The TIP development process also calls for the preparation of a financial component, after the projects are scored, which establishes the limits of the region's financial capacity over the short term. It includes estimates of funding levels for the TIP, which have been discussed with state and federal agencies. At the end of the process, the RTC submits its recommended TIP to the MPO Board for adoption. It is also at this point that the MPO Board considers the possibility of flexing, or transferring, funds betweeen FHWA categories. During the last round, the MPO's Board recommended that PennDOT flex $100 million of highway funds to SEPTA in FY 1995.

"According to members of the MPO's Board, the requirements for financial constraint and procedures for prioritizing projects have caused member governments, such as Camden and Philadelphia, and other organizations, such as SEPTA, to participate in the TIP development process to a greater degree than ever before. Without a high level of participation, member governments were concerned that their projects would not be advanced, and that their jurisdictions or agencies would not receive their fair share of federal dollars."

c. FHWA and FTA Administrators' Focal Points

(1) Financial Planning

"The MPO staff stated that it works closely with PennDOT and NJDOT to determine the levels of state funding that will be made available. This process is complicated by the fact that the states have varying approaches to governance.

"New Jersey issues guidance to allocate funds to the state's three MPOs. DVRPC is currently evaluating whether New Jersey's most recent allocation to the region represents its fair share. The state covers the entire local match for federally funded projects. Procedurally, the TIP is presented to New Jersey's state legislature before approval by DVRPC. Finally, NJDOT makes funding decisions for Congestion Mitigation and Air Quality (CMAQ) projects in consultation with a statewide air quality

committee.

“In contrast to New Jersey, Pennsylvania's counties and cities experience less uniformity in the allocation of funds. Each jurisdiction petitions the State for funds. In addition, counties, cities, and transit operators are responsible for providing their own match to federal funds. They can negotiate with the State to provide a percentage of the match, but this occurs on a project-by-project basis. Decision makers in the Philadelphia area feel that, historically, the Philadelphia metropolitan area has not received a fair share of state funding relative to its economic contribution to the state. DVRPC was recently successful in campaigning for a higher portion of Pennsylvania's State highway funds for the TIP years, increasing the original allocation from 19 percent of the state total to 29 percent. According to DVRPC staff, the latter percentage more closely approximates the region's share of population and its economic contribution to the State.”

“Both states rely on traditional funding sources. The New Jersey Transportation Trust Fund provides state funds for highway and transit projects that are funded by the Motor Fuel Tax, Toll Authority Contract Payments, and other vehicle fees and taxes. The obligation limit on the Trust Fund was recently raised by the legislature to $565 million per year. General appropriations are also made annually to provide operating assistance to transit. New Jersey utilizes a provision in ISTEA which allows the state to take certain credits for toll revenues invested in the system by its toll authorities, thereby offsetting the required 20 percent match for federal projects.”

“Act 26, the Public Transportation Assistance Fund for transit in Pennsylvania, was passed in 1991 to provide a dedicated funding source for that State. It taxes tires, motor vehicle leases and rentals, and utility companies, and generates approximately $141 million per year. SEPTA receives approximately 70% of these funds and is allowed to spend up to 30% of the funds for asset maintenance (operating costs). The Pennsylvania Motor License Fund provides for highway and bridge improvements, design, maintenance and purchase of rights-of-way, as well as highway patrol operations. This fund generates approximately $1.5 billion annually. Discretionary appropriations are also made annually by the State to provide operating assistance to transit. Other sources of funds include bridge, turnpike, and other toll authorities whose revenues are used to maintain and operate their respective facilities.”

“Future innovative revenue sources, which are not currently utilized but are identified in the 2015 Plan are: congestion pricing, parking pricing, toll districts, and the development of unused rights-of-way.”

(2) Financial Constraint

"The 2020 Plan was scheduled for completion in the spring of 1995. The financial component was not complete at the time of the review; however, the MPO staff indicated that it would be comparable to the one included in the current 2015 Plan.

"The 2015 Plan identified corridors and transportation centers and very few specific improvements beyond those programmed in the TIP. Due to this approach, the plan's financial component identifies how only $5.0 billion of $18.5 billion of anticipated revenue would be spent. The remaining $13.4 billion was shown as projected revenue with little indication of how

it would be used, except that future projects would be developed through corridor and subarea studies, management systems, and the planning processes of the states, authorities, and counties.

"The preparation of a financially constrained plan requires moving beyond the time frame of the TIP and identifying improvements that are consistent with the long-range vision. However, the design concept and scope for improvements to be built with the uncommitted $13.4 billion have not yet been determined. Until these difficult tasks are completed through the regional planning process, the steps that the region must take to meet its accepted vision for transportation and land use development will not be clear.

"The MPO has not documented specific alternatives that identify the design concept and scope of different improvements versus the levels of future funding on a corridor-by-corridor basis. The MPO staff stated that the transportation plan would become more specific after the completion of corridor and MISs. Thus, until the necessary MISs have been completed, the MPO has no clear picture of the financial needs for transportation for its 2020 Plan.

"The TIP is financially constrained; however, it does not provide a clear financial picture regarding the sources of funds that are needed to cover the $3.5 billion in costs. The TIP identifies the aggregate level of federal funds--$3.0 billion--which the area expects to receive. It does not identify the source of the remaining $0.5 billion. The assumption is made that these funds will be provided, as they always have been, by the states, local transit operators, and local jurisdictions."

(3) Observations and Recommendations: Specificity of the Transportation Plan

"The 2015 plan identifies corridors and transportation centers, not specific improvements. According to the MPO staff, the 2020 Plan will not be specific either, since corridor studies have not yet been completed. Without more specificity over the twenty-five year period, there can be no clear picture of the funding needed to maintain, operate, and improve the existing transportation system."

12. Salt Lake City FTA/FHWA Enhanced Planning Review
(Lyons, 1996c)

a. Summary

"The Wasatch Front Regional Commission produces a clear and informative TIP.There also has been progress in responding to the challenges of ISTEA, as exemplified in the financial analysis conducted in support of the Transportation Plan and TIP, preliminary efforts to incorporate Major Investment Studies in the planning process, and initiation of long-range transit planning."

b. FHWA and FTA Administrators' Focal Points

(1) Financial Planning and Financial Constraint

"The Transportation Plan, TIP, and related studies produced by the MPO have addressed financial constraint and indicate that proposed plans and projects can be fully funded. The revenue analysis takes into account all funds provided from federal, state, and local sources. Cost projections were based on estimated project costs in conjunction with the existing allocation of funds to programs. The process used to develop revenue and cost projections is summarized below, including key assumptions and factual information upon which the analysis is based."

(2) Revenues

"WFRC developed revenue projections through a three-step process: (1) estimation of total revenues provided from federal, state, and local sources; (2) allocation of statewide revenue to Salt Lake and Ogden areas, and determination of the percentages available for capital expansion projects; (3) discounting of revenues to present value for comparison with cost estimates."

(3) Highways

"Projected year 2015 revenues for highways total $5.6 billion, which is predicated on a substantial increase in future funding, as follows:

- Federal fund apportionments under ISTEA will grow 1% annually for most programs, and the state's 2015 state obligation authority will approach the level of future apportionments.

- Gasoline and special fuel taxes available for highway funding will increase by five cents per gallon every five years, beginning in 1995. This assumption is based on historical trends. While the legislature has not actually increased taxes since 1987, population-related growth in gasoline consumption made it possible to pass a $60 million general revenue allocation equivalent to the amount that would have been available from a five-cent tax increase.

- Other state revenues were assumed to increase at moderate rates. User fees and permit revenues were assumed to grow at rates consistent with historical trends, yielding a total of $441.7 million in 2015. Recent revenue distributions allocated 69% of this sum to UDOT, 8% to other state agencies, and the remaining 23% to the city/county Class B and Class C programs, on the basis of local population, road mileage, and land area. The MPO also forecasts that the state will provide $20 million per year from the general fund for highway improvements through the year 2010. Based on an agreement with the Planning Division of UDOT, the MPO projects that the Wasatch Front Region will receive 60% of the state's highway funds over the first ten years of the period covered by the Transportation Plan, and 40% over the following ten years.

- Another source of revenue for local roadway projects is the general funds of the counties and cities. The MPO calculated local revenue as a percentage of state revenues, projecting increases proportional to population growth."

(4) Transit

"UTA receives revenues to support its operations and capital projects from a local 1/4 percent sales tax, FTA Section 3 and Section 9 funds, fare revenue, and other sources, such as interest and advertising. Section 3 funds are assumed to be available for fixed guideway projects over the next 22 years. UTA also expects to receive additional Section 3 funds for major bus purchases and other capital facilities. Total revenues available for transit operations are projected to be $174 million in 2015. Between 1995 and 2015, a total of $363 million in Section 9 funding and $46 million in Section 3 bus funding are expected. The total transit funding anticipated from all sources over this same time period is approximately $3 billion.

"The major revenue assumption incorporated in the transit revenue

projections is the approval by the electorate of a 1/4 cent increase in the local sales tax, doubling the current tax base dedicated to transit, beginning around the year 2000. The assumption was applied in the estimate of Section 9 funds, which are expected to increase as a result of increased revenue vehicle miles made possible by the additional 1/4 cent sales tax revenue. Other revenues from advertising, special services, and interest earnings were estimated to be 1% of total annual operating revenues. The assumed increase in sales tax revenue is critical to the conclusion that the planned light-rail line can be fully funded. The MPO has suggested, however, that cutbacks in planned bus service expansion could be used to fund the fixed guideway project, if the sales tax increase is not approved."

(5) Costs

"For highways, the analysis included estimated project capital costs, maintenance programs, and management systems costs. To estimate overhead costs, a 15% rate was applied across the board. New highway capacity needs were estimated for collector and arterial roadways, but not for local streets, which were assumed to be funded by private developers. Highway maintenance costs were estimated at $1000/lane mile and preservation costs at $5,000-12,000/year per lane mile, applied to total lane miles, which are assumed to grow at one percent annually. These estimates are based on UDOT and Highway Performance Monitoring System data, supplemented with information on local roadways collected from local traffic departments.

"Transit cost projections take into account operations and maintenance and capital costs for both bus and planned fixed guideway services. The TDP provided transit cost figures for the near-term, serving as an interim PTMS. The I-15 Corridor Project Environmental Impact Statement (EIS) financial analysis, which included cost estimates for the proposed light-rail transit project, was the source of cost data for transit capacity expansion. Transportation Enhancement Program costs also were estimated, based on the region's limited experience with this program."

(6) Observations and Recommendations: **Financial Projections**

"The financial analysis performed by the WFRC is comprehensive and generally realistic. The current $131 million federal earmark authorized for light rail transit is not included in future financial projections. The MPO has optimistic estimates of growth in Section 3 and Section 9 funding."

13. San Francisco FTA/FHWA Enhanced Planning Review

(Lyons, 1996l)

a. Comments on Regional Transportation Plan Relating to Financial Constraint

(1) Two-Track Planning Process

“The current RTP, adopted in June, 1994, was developed as a financially constrained plan identifying regional priorities. The RTP, developed as part of a two-track process, represents Track-One. What MTC staff describe as a maintenance update of the RTP is to be completed in 1996.

“The Two-Track planning process used to develop the 1994 RTP was designed to program forecasted funds in Track-One. Track-Two is described in the 1994 RTP as an advocacy document to argue for new transportation funding and mobility strategies. According to MTC staff, time and staff constraints led to the postponement of the Track-Two process in 1994, with plans to return to it after the RTP was adopted in 1994. Preliminary actions have been taken to develop Track-Two, but this process will not be completed before the end of 1996.

“A focus of the adopted strategy was on identifying how to best program forecasted future funds to ensure that sufficient funds will be available to operate and maintain the existing transportation system, fund projects that had been approved for implementation prior to adoption of the 1994 RTP, and develop new projects to meet regional transportation needs, and objectives.

“Financial projections were based on careful assumptions about future funding, constrained by an understanding of the limits imposed by the political process. MTC's financial analysis did not assume funding at levels beyond those available in the past and assumed that some fund sources, such as demonstration funds, would not continue beyond already identified limits. Maintenance, operation, and committed projects account for 75% of funds forecasted over the period covered in the 1994 RTP. Any proposed new projects will compete for funds from the remaining 25% of forecasted funds. The 1994 RTP includes programmed projects and "place-holders" for other projects which will be identified through corridor and MIS studies.

“Track-Two is continuing to be developed with input from the Bay Area Partnership and will be influenced by some on-going and planned corridor studies. The process will identify and address major funding shortages, such as for operating funds. It is being designed to help policy-makers

and the public understand how new investments would enhance the region's transportation system, what the full costs of these investments would be, and to identify alternative sources of funds for these investments."

(2) Financial Planning and Key Assumptions

"The current RTP was developed based on a rigorous estimate of future availability of funds and estimates of costs to operate the current transportation system and complete projects approved through the regional planning process. This provides a baseline for future planning and identifies funding shortfalls, particularly among transit operators, that will require policy choices. Potential choices, identified by the region's transit operators, include: cutting services; increasing fares and other pricing strategies, and changing the structure of the management of components of the transportation system.

"The financial process used in the development of the RTP started with an estimate of the funds which are 'reasonably available' over the twenty-year planning period. Key assumptions governing this estimation were:

- An annual inflation rate of 5%;
- Forecasted revenues and project costs in inflated year-of-expenditure dollars;
- State funding consistent with the 1994 State Transportation Improvement Program;
- Federal ISTEA funding equal to authorized funding levels with ISTEA apportionment factors held constant;
- Revenues from gas taxes projected to grow at half the rate of inflation (5%) beyond the current ISTEA authorization period;
- Transit operator fare structures keyed to inflation;
- Air quality attainment assumed by 1997, so no CMAQ funding is assumed available in 1998 and beyond;
- Projected revenues assumed to equal projected costs for toll bridge Operation and Maintenance (O&M), certain state highway maintenance and operations programs, and non-pavement maintenance and improvements to local streets and roads.

"Cost of the baseline program described in the RTP began with those costs associated with maintaining, managing, and operating the existing system and the costs of projects for which prior commitments exist. Available revenues were matched to baseline costs under a set of principles which used the key assumptions noted above as well as the following:

- Local funds were assigned for the pavement and maintenance needs of local streets and roads;
- For transit, priority was given to funding existing transit services for their asset replacement and rehabilitation programs before funding service expansions;
- MTC resolution 1876 extension corridors with regional financial commitments were given priority, and existing funding commitments were maintained, even when significant project scope modifications were anticipated;
- Operating and capital costs were assigned to the counties for which the service was provided.

"At the end of this process, MTC identified the funding shortfall or surplus for baseline programs by county. The regional total of funds dedicated in the Baseline accounted for $70 billion of the estimated $74 billion of transportation funds expected to flow to the Bay Area over the next 20 years, leaving $4 billion for new investments.

"The RTP pursued an investment strategy which allocates the remaining $4 billion in discretionary funds (largely STP, CMAQ, and TSM funds). Approximately 30% of the discretionary funds were used to fund shortfalls in the Baseline. In the end, all counties had some margin of new investment opportunities through the flexible funds. Approximately 30% went to transit upgrades or extensions, and 11% went to operational strategies and improvements. The remaining funds went to new highway improvements including HOV lands and interchange improvements.

"Financial Planning is an ongoing process. The region is developing or has developed a number of tools to manage assets and track funds. These tools, such as the Pavement Management System (PMS) and the TIP monitoring system, allow the region to assess its current financial situation and estimate future needs. Track-Two will look at various future transportation systems and funding scenarios based on their likelihood of occurring and identify several alternative transportation systems, including a base case that is derived from the current RTP. This will help policy makers and the public understand the effects various levels of new funds can have on the transportation system."

b. Comments on TIP Relating to Financial Constraint

"The region's transit operators develop SRTPs using their own information and information provided by MTC. The SRTPs are financially constrained and identify current and short-range (ten-year) operation and maintenance funding requirements and planned changes in transit services. These short-term transit planning needs can then be reflected in the TIP by programming funds to address short-range maintenance, operation, and

service needs of each transit operator. Several transit operators and CMAs are considering developing long-range plans which will be developed in coordination with regional long-range planning efforts."

c. Observations on Financial Planning and Financial Constraint

(1) Rigorous Financial Planning

"The regional transportation planning process has made progress in developing financial plans based on careful and consistent assumptions and rigorous analysis. These plans provide a sound foundation for coordinated regional transportation planning."

(2) Strategic Role of the Regional Transportation Plan

"The current RTP represents significant progress toward incorporation of many elements envisioned in ISTEA. Future updates of the RTP should build on this foundation and expand from the present programming focus to a long-range strategic emphasis. Given the careful financial assumptions used in the development of the 1994 RTP, it is particularly important that the participants in the regional transportation planning process begin to identify new sources of funds."

(3) Track-Two Planning Process

"The region is encouraged to complete its Track-Two planning process. This process could be combined with the financially constrained RTP to present long-term alternatives in terms of costs, revenues, and system performance. Future RTP updates should incorporate information from the Track-Two process."

"The Track-Two process should build on the strong foundation for financial planning and help participants in the regional transportation planning process, policy-makers, and citizens understand what affect new funding sources can have on the transportation system."

(4) Links between SRTPs and the Regional Planning Process

"Development of comprehensive SRTPs, as required by MTC, provide a strong foundation for short-term transit planning. The SRTPs, coupled with financial constraint requirements, provide a strong link between each transit operator's planning process and the regional transportation planning process. Integrating long-range plans developed by CMAs and transit operators will further strengthen the regional transportation

process."

14. Seattle FTA/FHWA Enhanced Planning Review
(Lyons, 1996f)

a. Development of the Plan and TIP

(1) Transportation Plan

"The MTP includes a financial analysis that indicates that revenues from existing sources will be sufficient to meet the maintenance and preservation needs of the existing transportation system, but not to fund substantial capacity expansion. A number of potential new financing options are discussed, including modification of the local and state tax structures and transportation pricing."

(2) Transportation Improvement Program

"The TIP demonstrates financial constraint. This finding is predicated, however, on full authorization of Section 3 fixed guideway and Section 9 funds or Section 3 discretionary funds sufficient to cover the cost of several regional projects, which exceed the level that would be predicted through the extrapolation of historical trends."

b. FHWA and FTA Administrators' Focal Points

(1) Financial Planning and Constraint

"Financial analysis performed by PSRC indicates that current revenue sources, with no tax increases, can fund little more than maintenance and preservation of the existing transportation system on a long-term basis. Maintenance and preservation costs are projected to be $36.9 billion over the MTP horizon of 25 years, which reflects current annual costs for these purposes of almost $1.5 billion. Planned expansion projects total an additional $21.4 billion, for a total future cost of $58.3 billion.

"PSRC projects that $36.9 billion in revenues will be generated between 1996 and 2020, from existing tax and operating revenue sources. This estimate reflects some increase in the tax base, due to population and economic growth, but no increases in tax rates. A decline in constant dollar revenues from the Motor Fuels Tax is forecast, due to inflation and increasing fuel-economy, despite a projected increase of over 5 million daily trips.

"Comparison of total projected costs and revenues results in a shortfall of

over $21 billion. Public transit projects account for about half this shortfall, and highway projects contribute about 37 percent. The balance is freight and nonmotorized-transportation projects and programs. Transit costs correspond to the financing requirements of the regional rail system identified in the RTA Master Plan. Highway projects would expand the capacity of the existing roadway network, primarily in the form of HOV lanes and local roads. PSRC's analysis shows that increases in motor fuels and sales taxes consistent with historic trends could reduce the revenue shortfall to $5.6 billion for the 25-year planning horizon. The electorate defeated a referendum on March 14, 1995, which would have increased the local sales tax by 0.4 cent and the local motor vehicle excise tax by 0.3 cents, to fund development of the regional rail and bus transit system.

"The MTP financial strategy is structured into short- and long-term phases. During the first phase, which extends through 2005, the shortfall is projected at $4.4 billion, assuming no tax increases. The greatest share of the shortfall would materialize in the period from 2006 through 2020. When tax rates are assumed to increase at historical rates, the short-range deficit is eliminated, and the long-range deficit is reduced to $5.6 million. The MTP identifies three options for eliminating the projected revenue shortfall: (1) reducing costs, through improved design and more efficient maintenance practices; (2) postponing improvements; and (3) increasing revenues. Potential new revenue sources include regionwide implementation of parking taxes and motor vehicle license charges, which currently are authorized for use by local governments; increasing the percentage of motor fuels tax allocated to the region; inflation-adjusting the motor fuels tax; and implementing pricing measures, such as additional fuel taxes, vehicle registration fees, parking fees, and congestion road pricing."

(2) Observations and Recommendations: Scope of Financial Analysis

"Financial planning is unusually comprehensive, in that it reflects a special effort to account realistically for operating and maintenance costs. Over time this effort will require additional refinement in terms of the analysis of new funding sources and more comprehensive integration of programs administered by transit agencies and the State. Another strength of the financial analysis is the evaluation of pricing strategies."

15. Washington, DC FTA/FHWA Enhanced Planning Review

(Lyons, 1996m)

a. Comments on Regional Transportation Plan and TIP Relating to Financial Constraint

"Financial constraint requirements are addressed in the development of the Plan through a process that begins by identifying costs to complete projects included in the previously adopted Plan and identifying funding requirements to operate and maintain the existing transportation system. These costs are compared to revenue estimates developed by the TPB staff and consultants based on historic funding patterns. As part of the process used to develop the current Plan, the TPB hired a consulting firm to estimate financial resources and requirements for the period from 1993 to 2010. This study identified a significant shortfall in future funding for operation and maintenance of the existing system and development of new projects included in the previously adopted Plan and TIP.

"The consultant's financial study was included, by reference, in the Plan and its projections were a key factor in decisions made in the Plan. The shortfall in future funding to operate and maintain the existing system was addressed by constraining funds for maintenance and preservation in several ways, including changing assumptions about the level of maintenance activities and by extending the planning period from 2010 to 2020. Some proposed new investments were eliminated, and others were either deferred until later in the planning period or reclassified as studies. These projects will be considered as part of the vision planning process. The study suggested several new sources of funds, such as tolls and congestion pricing, which will be evaluated as part of the vision planning process.

"Financial constraint requirements are addressed in the development of the TIP through coordination between state and WMATA programming staff and TPB staff. The TPB staff depend upon state and WMATA staff to provide estimates of funds available to the Washington region for each of the six years of the TIP. Since most federal and state funds are drawn from state-wide allocations or trust funds, providing allocations to the Washington region requires coordination with other urban and rural allocations throughout the respective states and careful reconciliation with state-wide control totals for the various federal and state funding categories."

b. Observations on Financial Planning and Financial Constraint

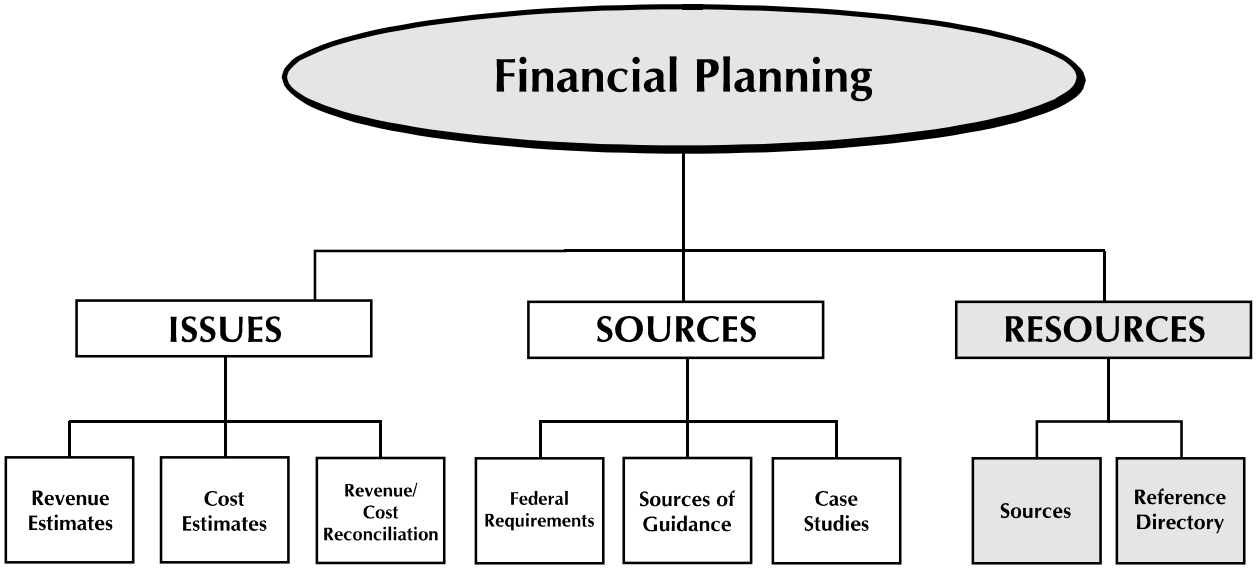
(1) TIP Revenue Estimates

"The TPB, WMATA, and the states should work together to identify a process to provide timely revenue estimates earlier in the TIP development process. There is presently no uniformity to this process as to approach or timing. Maryland's process was identified as top-down with regions being informed of resource availability after statewide program decisions are made. Likewise, Virginia's process was described as being controlled centrally by the Commonwealth Transportation Board (CTB), which annually adopts a six-year transportation program in July. Local governments are informed of resource availability as the CTB develops its six-year transportation program."

(2) Future Fund Shortfall

"The financial estimates of future revenue requirements and funding sources suggest that the region will have difficulty meeting its future transportation needs. The TPB should continue commendable efforts to identify new revenue sources."

Resources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ISSUES
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RESOURCES
Revenue Estimates
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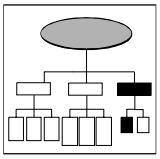

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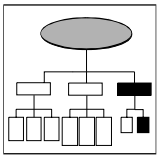

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Case Study MPOs

NOTE: Links to multiple TIPs and LRTPs are available on-line at the National Transportation Library [http://www.bts.gov/ntl/subjects/statements.html].

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